DOCUMENT RESUME

ED 048 015 SE 010 985

AUTHOR	Bowen, Haskell, Comp.
TITLE	Drug Abuse Information, Teacher Resource Material.
INSTITUTION	Santa Clara County Office of Education, San Jose, Calif.
PUB DATE	[71]
NOTE	282p.
AVAILABLE FROM	Santa Clara County Office of Education, San Jose, Calif. 95110 ($2.38)
EDRS PRICE	EDRS Price MF-$0.65 HC-$9.87
DESCRIPTORS	Curriculum Development, *Drug Abuse, *Health Education, *Instruction, Narcotics, Opinions, *Resource Materials, Teaching Guides

ABSTRACT

This informational publication is to be used as an aid for teachers, bringing them basic facts regarding drugs and drug abuse. Its purpose is to (1) give additional teacher background information and (2) enrich any course of study that has been developed on drug abuse. To use the material most effectively, it is suggested the teacher have an awareness of the student concept of the "establishment" and an awareness of the "hippie" subculture. Papers and/or speeches representing the opinions of various nationally recognized authorities are compiled under the following topics: barbiturates and amphetamines, L.S.D., glue sniffing, marihuana, and general information on drugs. Also included are a three-week drug abuse unit with teaching sequence, objectives, and techniques of instruction; resource materials; a glossary of drug terms and jargon, and an enlarged bibliography. (BL)

ED048015

drug abuse information

Teacher Resource Material

U.S. DEPARTMENT OF HEALTH, EDUCATION
& WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

Compiled By
HASKELL BOWEN

Santa Clara County Office of Education
San Jose, California

ED048015

FOREWORD

As a result of the combined efforts of the Santa Clara County Board of Supervisors, the Santa Clara County Office of Education, the Santa Clara County Grand Jury and the Campbell Union High School District, the Santa Clara County Drug Abuse Information Center has been established.

The Drug Abuse Information Center has three basic purposes:

(1) to create materials on drug abuse for schools, county agencies, and the general public;

(2) to gather data on the nature of drugs and their effect, become a clearinghouse regarding information about them, and develop dissemination procedures; and

(3) to keep abreast of drug trends.

This informational publication is presented as an aid for teachers to bring them basic facts regarding drugs and drug abuse. Included, too, are film lists, bibliographies and other resource material.

We urge you to use the material in your district and to send in your reactions, suggestions and ideas. The material is for you; let us hear from you as you use it and as you discover new information which warrants dissemination.

Glenn W Hoffmann

GLENN W. HOFFMANN, Superintendent of Schools,
Santa Clara County

INTRODUCTION

The purposes of this publication are (1) to give additional teacher background information and (2) to enrich any course of study that has been developed on drug abuse.

The compilation of material represents the opinions of various nationally recognized authorities who have contributed time, study and effort toward the solution of the problem.

It is urged that teachers who plan to present this material to the students have an awareness of the student concept of the "establishment" and an awareness of the "hippie" subculture. One book in particular, It's Happening by Simmons, points out this sociological implication in our society. Other books which may be helpful to teachers are listed in the bibliographies.

ACKNOWLEDGMENTS

Appreciation is expressed to the many people who have assisted in contributing to the development of this publication. Grateful acknowledgment is given to all those who gave information, materials and time. Special mention for their contributions is expressed to the following: the Santa Clara County Board of Supervisors, Santa Clara County Grand Jury, and to Laurance J. Hill, Robert Pierce, C. R. Timpany and Glenn W. Hoffmann. Both the interest and cooperation of the total community have been outstanding.

Compilation Editor:
HASKELL BOWEN
Coordinator of Drug Abuse Education
Campbell Union High School District

TABLE OF CONTENTS

Page

FOREWORD i

INTRODUCTION ii

DRUG ABUSE IS A COMMUNITY PROBLEM 1

DO'S AND DON'TS OF DRUG INSTRUCTION 7

DRUG ABUSE RESOURCE MATERIALS 9

DRUG JARGON 13

GLOSSARY 16

BARBITURATES AND AMPHETAMINES

Dependence on Barbiturates and Other Sedative Drugs
American Medical Association 19

Mother's Little Helper?
N.J.H. Mansfield 30

Depressants (Sedatives-Hypnotics) Fact Sheet - 4
From the Bureau of Drug Abuse Control 34

Stimulants Fact Sheet - 6
From the Bureau of Drug Abuse Control 36

Abuse of Barbiturates and Amphetamines
Maurice H. Seevers, M.D. 38

An Outline for the Study of Amphetamine Abuse
David E. Smith, M.D., M.S. 46

LSD

My LSD "Trip" Nearly Crashed
Lambert Dolphin, Jr. 48

The Psychotomimetic Drugs
Jonathan O. Cole, M.D. and Martin M. Katz, Ph.D. 51

Prolonged Adverse Reactions to Lysergic Acid Diethylamide
Sidney Cohen, M.D. and Keith S. Ditman, M.D. 57

Lysergic Acid Diethylamide (LSD-25) and Ego Functions
Gerald D. Klee, M.D. 66

LSD: Research & Joy Ride 83

LSD Today 87

Joint Statement on LSD 95

The Dangers of LSD 98

The Problems of LSD^{25} and Emotional Disorder 106

Grand Mal Seizures Following Ingestion of LSD^{25} 112

LSD: Fact and Fantasy
J. Thomas Ungerleider, M.D. and Duke D. Fisher, M.D. 114

A Medical Look at the Facts and Fantasies
J. Thomas Ungerleider, M.D. 120

"The Bad Trip" - The Etiology of the Adverse LSD Reaction
J. Thomas Ungerleider, M.D., Duke D. Fisher, M.D.,
Marielle Fuller and Alex Caldwell, Ph.D. 124

GLUE SNIFFING

Glue Sniffing
Kent M. Pearson 137

Portrait of a Glue Sniffer
Willie S. Ellison 140

MARIHUANA

Marihuana and Society
AMA Council on Mental Health 147

Narcotic Drug and Marihuana Controls
Donald E. Miller 151

Drugs and You
Hal W. Chauncey and Laurence A. Kirkpatrick 164

Marihuana and Crime
James C. Munch, Ph.D. 169

GENERAL INFORMATION ON DRUGS

Nature and Extent of the Problem
Richard H. Blum, Ph.D. 183

The Roots of Student Despair
Seymour L. Halleck 192

Drugs and Personal Values
Richard H. Blum, Ph.D. 200

Drug Use and Student Values
Kenneth Keniston, Ph.D. 210

Morning Glory Seed Reaction
Albert L. Ingram, Jr., M.D. 221

Peyote and Mescaline
Kent M. Pearson 225

Patterns of Hallucinogenic Drug Abuse
Arnold M. Ludwig, M.D. and Jerome Levine, M.D. 228

The Biochemistry of Psychoactive Drugs
Leo G. Abood, Ph.D. 237

Haight-Ashbury Medical Clinic 245

Toward a Rational View of Hallucinogenic Drugs
William H. McGlothlin, Ph.D. 250

The Drug Abuse Control Amendments of 1965 Fact Sheet - 1
From the Bureau of Drug Abuse Control 264

The Illegal Traffic in Dangerous Drugs Fact Sheet - 2
From the Bureau of Drug Abuse Control 266

APPENDIX

Suggested Starting Bibliography in Narcotic Addiction "A" 267

Bibliography "B" 272

DRUG ABUSE IS A COMMUNITY PROBLEM

Many people would like the school to shoulder the responsibility of preventing drug abuse. If this were possible, I am sure the schools would be happy to oblige. In order to get a clear picture, one has to realize that the reasons for drug abuse are very complex. Such things as curiosity, peer pressure, experimentation, rebellion, hedonistic attitude, "religious" experience could all be very valid reasons. However, these may be the mere top of the iceberg, with more sophisticated reasons beneath. Studies were made in the Coronado School District which showed that each person has a built-in need for a good image, and many of the value dimensions indicated below are essential in producing well-being in an individual. These are such things as affection, rectitude (morals), power, wealth, skills, knowledge, enlightenment. Thus, many times, an individual is willing to risk his life style to become involved in the drug scene if one or a combination of some of these value dimensions are not being met in his life.

Therefore, we believe that the school which can present a lot of the cognitive (knowledge) needs help from such people as community mental health referral agencies, church groups, police department, judicial department, service groups, and other interested community agencies because cognitive materials alone are not enough to deter or prevent an individual from becoming involved in drugs. The affective domain is just as important. When both can be applied to an individual's life, there is a great possibility that help can be afforded.

TEACHING SEQUENCE AND OBJECTIVES

Because many students have had previous courses in drug abuse, many schools are now changing their curriculum. One way to be more relevant is to include the drug abuse unit throughout an entire semester or year. For example:

Amphetamines - can be taught with a unit on the endocrine system or any unit that would have to do with basal metabolism, etc.

Barbiturates - could be taught in a unit on the circulatory or respiration system.

Narcotics - could be taught in a unit on mental health.

Hallucinogens and Marijuana - could be taught in a unit on the central nervous system.

Volatile Chemicals - such as glue and gasoline, etc., could be taught in a unit on first aid.

The idea is to include all aspects of drug abuse while making it relevant. We feel that drug abuse can be taught in all classes; in the example above Health was chosen because that is where it is taught in the Campbell Union School District. However, if you choose to use a block or unit, the sequence below is presented.

****

This is a sample lesson plan only. You may use all or any part thereof. It is intended only as a guide:

MONDAY: Introduction of drug abuse and drug dependence. Teachers may use background material* and book DRUG ABUSE. Lecture material . . . Chapter 1, and teacher's manual. Use comparison chart.**

*Teacher's manual or any other material obtained from bibliography.
**Comparison chart developed by Dr. Joel Fort shows, on a single page, most of the drugs and gives the reader an opportunity to compare slang names, usual single adult doses, direction of action, method of taking, etc., and is a very handy teaching aid. This chart is available, free of charge, from the National Association of Student Personnel Administrators, Drug Education Project, University of Rochester, Rochester, New York.

Explain student workbook and how it will be put together, etc.

Some objectives of the 1st day:

1) To create an awareness of what drugs are and how they can be abused.
2) To show how dependency is established both psychologically and physiologically.

TUESDAY: Show 35MM slides.* This will give an overall drug picture: marijuana, LSD, heroin (all the opiates), dangerous drugs, etc. (Slides will have a running commentary (tape) if teacher desires).** Start lecture material on LSD if time permits.

*Following Slide Series are Available:

1. Slide series developed by Sgt. Don Trujillo, Drug Education Coordinator, and Sgt. Aubrey Parrott, both members of the San Jose Police Department Narcotics Detail. The series covers everything from deliriants (glue, etc.) to the opiates (heroin, etc.) Some of the material covered includes: drugs of abuse most recently being used by youngsters; discernable eye reactions of drug abusers; and related drug paraphernalia. Included with the slide series, at no additional charge, is a tape cassette commentary and a lesson outline that includes information on factual reference material (latest scientific research on marijuana) as well as material to stimulate discussion. The series is continuously updated.

   The slides are available through Sgt. Don Trujillo, San Jose Police Department, 201 West Mission Street, San Jose, California 95110.

Full series of 70 slides (including cassette and lesson plan)	$75.00

2. Slide series developed by Lt. Stan Hardman, San Jose Narcotic Detail, with pictures of marijuana, LSD, amphetamines, barbiturates and the opiates.

   The slides are available through Lt. Stan Hardman, 3450 Rocky Mt. Drive, San Jose, California 95127. Prices are as follows:

   Full set of 36 slides (available on a 10-day trial basis)

First set	$360.00
Each additional set	75.00

**Book of pictures will also be available to each school... 8 x 10 showing in detail the above-mentioned drugs plus other paraphernalia.

Some objectives of 2nd day:

1) To give the student a visual knowledge of how the drugs may appear.
2) To give the student a basic knowledge of drugs.

WEDNESDAY: Lecture on LSD including: history, dependency, and effects (both acute and chronic).

Use material from DRUG ABUSE, Chapter 5, and/or background material in teacher's manual.

Some objectives of 3rd day:

1) To indicate to the student how LSD was introduced into our society, and why there seems to be a trend to abuse.
2) To show the psychological and physiological effects of LSD to the user.

THURSDAY: Play tape of Lambert Dolphin and/or Richard Alpert. This will or could be followed by a general discussion or a selected panel discussion.

Some objectives of the 4th day:

1) To show thinking of intellectual people who have taken LSD, and why their philosophy is based either pro or con LSD.
2) To allow students to express ideas, attitudes, and personal views on LSD.

FRIDAY: FILMS: LSD...Insight or Insanity
Drugs and the Central Nervous System

Teachers could compose three questions on each film to be answered by the students and returned on Monday.

i.e., Essay Question......Why did the film LSD, Insight or Insanity use Russian Roulette as a comparison to LSD?

Some objectives of 5th day:

1) To show to the students what some of the leading psychiatrists in the U.S. have to say about LSD and other drugs.
2) To allow the students an opportunity to express their feelings concerning the films.

SECOND WEEK

MONDAY: Use a part of the period for discussion of the assignment on the films. Collect assignment. It is suggested that no letter grade be given because you are asking for opinions. Credit of some type should be given the assignment.

Use the last part of the period for a quiz or test to cover material given up to this point.

Some objectives of the 6th day:

1) To evaluate how the learning process is going up to this point in the unit.

TUESDAY: KXRX tape on drug abuse featuring Dr. Ungerleider, Dr. Fisher, etc.

You can also consider a discussion if you want or if time permits.

Also, if time permits, start lecture materials on marijuana... Chapter 4 in DRUG ABUSE plus other background materials in teacher's manual. Use 35MM slides as a repeat if needed.

Some objectives of the 7th day:

1) To spend more time hearing from experts on drug abuse, and how the experts feel this could affect an individual's life.
2) To show the student how marijuana affects both psychologically and physiologically.

WEDNESDAY: Finish lecture materials on marijuana.
Start lecture materials on volatile chemicals:

1. glue sniffing...nature of glue, dependence, etc.
2. gasoline sniffing
3. solvent sniffing

Materials available from Chapter 3 and background information contained in teacher's manual. (There are some good case histories in the teacher's manual on glue sniffing.)

Some objectives of the 8th day:

1) To show the students how the volatile chemicals can affect the physical and psychological processes when abused.

THURSDAY: Lecture on narcotics: opiates (heroin, morphine, codeine, and peragoric cocaine). Include physical and psychological dependency. Chapter 6 in DRUG ABUSE and background information in teacher's manual. Use 8 x 10 pictures showing hypo kit and other paraphernalia.

Some objectives of 9th day:

1) To show the student how the opiates are derived from their natural state to useable material.
2) To indicate how some drugs can be useful to mankind if not abused.
3) To indicate how the drugs can be harmful to mankind if they are abused.

FRIDAY: FILMS: Narcotics, Pit of Despair (emphasis on opiates rather than LSD and other drugs)
LSD-25 - San Mateo Produced Film

Have a couple of good essay questions on each film to be answered and returned on Monday. Use same routine as you did on last Friday as far as evaluation is concerned.

Some objectives of the 10th day:

1) To show the students how one person had his life adversely affected by abuse of drugs (the opiates in particular).
2) To allow time for the student to express himself concerning the use of narcotics.

MONDAY: Allow part of the period for discussion of films. Start lecture materials on the dangerous drugs...Amphetamines and Barbiturates.

Use material from Chapter 2 of DRUG ABUSE and also material in teacher's manual.

Some objectives of the 11th day:

1) To show the student the psychological and physiological effects of the amphetamines and barbiturates.
2) To allow time for discussions by the students so their feelings on the dangerous drugs can be expressed.

TUESDAY: Discuss law enforcement and penalties associated with drug abuse. This material can be found in Chapter 7 of DRUG ABUSE plus the teacher's manual.

If time permits have a discussion on current laws and their adequacy.

Some objectives of the 12th day:

1) To indicate to the student what the laws are concerning drug abuse.
2) To show the student how he can help law enforcement do a more effective job.

WEDNESDAY: GIVE THE UNIT EXAM

There are some good questions in the book DRUG ABUSE that you can use or you can use them in conjunction with your own. In any event it would be a good idea not to use just the questions in the book. Since this is your unit exam, your questions would run the gamut. (Anything on drug abuse.)

Some objectives of the 13th day:

1) To evaluate the students on their knowledge of drug abuse.

THURSDAY: REVIEW AND DISCUSS THE UNIT EXAM

Go over in class each question of the unit exam (if time permits there will probably be some good discussions on many of the items).

Some objectives of the 14th day:

1) A review for the students and opportunity for discussion.

FRIDAY: The teacher may use any make-up material, etc., that was not included in earlier classes and general discussions.

Discuss a typical case history.

DO'S AND DON'TS OF DRUG INSTRUCTION

DO:

--base your program on real drug abuse problems in your own community. Do not try to get involved with a tailor-made program that another school district may be using.

--gain as full an understanding of the subject as possible. This does not mean that you know everything about the subject. If you don't know, give an honest "don't know". Many times this is as effective in establishing rapport with the class as knowing all the answers.

--have a desire to communicate objectively. Kids resent being preached at and will tune you out even though you think you are coming over strong and clear.

--attempt to develop positive attitudinal changes in the areas of drug abuse.

--impart the knowledge necessary to encourage decisions away from drugs.

--stimulate awareness and appreciation of the human body in good health.

--make your materials relevant. Try particularly at the high school or junior high school level to make your materials fit in with other units of study where possible. Be relevant.

--provide a multi-media approach.

--utilize resource people as much as possible for materials and in the classroom.

--include the entire range of drugs, helpful and harmful.

--be truthful.

--analyze advertising and pressure techniques.

--emphasize that the drug scene is here, and that students will be making decisions that will affect their entire lives.

--emphasize that awareness and education will enable them to make more mature decisions.

--use current events in teaching about drugs.

--point out the legal involvements of drugs.

DON'T:

--allow your understanding and objectivity to be construed as approval. Many times, teachers, counselors, and parents become so objective that students are confused as to where they stand.

--exaggerate scare or fear tactics.

--lie, lecture, or talk down to students regarding drugs.

--base your program on emotion, but on fact.

--pretend to know it all.

DRUG ABUSE RESOURCE MATERIALS

TAPES -- Copies of the following tapes can be obtained by (1) purchasing them, $3.00 each; (2) bringing in a blank tape for duplication, $2.00 each tape. All tape orders should be placed through Campbell High School District, A.V. Department, 275 E. Campbell Avenue, Campbell, California 95110, Attn.: Larry Liden.

LAMBERT DOLPHIN -- A Stanford Space Scientist, works at SRI (Stanford Research Institute). Extremely brilliant man. He took 500 micrograms of LSD on strictly an experimental venture. He had a medical doctor present, and a registered nurse. He recounts his experience of a "bad trip", "freakout", or psychotic experience. He is interviewed by Haskell Bowen, Director of Santa Clara County Drug Abuse Information Center, and recounts the entire trip giving details of the trip and the days that followed. He stated, "I was not back to my normal way of thinking for at least six months." (approximately 30 minutes)

ROUND TABLE ON HALLUCINOGENS -- Recorded at U.C.L.A. -- Three different authorities speak. Dr. J. Thomas Ungerleider, director of the U.C.L.A. Neuro-psychiatric Clinic, speaks on LSD and his related experiences with LSD at the clinic as well as other first hand encounters with people who have experimented with LSD. Dr. William McGlothlin, Research Psychologist, U.C.L.A. speaks on the entire movement of drug abuse, and its psychological and sociological impact on the United States. Dr. Richard Alpert, Psychologist at Menlo Park, and leading proponent of LSD. Speaks on why he thinks LSD is important in the lives of our young people. Dr. Alpert has taken approximately 400 "trips" on LSD and other hallucinogens. (Entire tape approximately 1 hour, 15 minutes.)

A TRIP TO OBLIVION -- Features authorities such as Dr. J. Thomas Ungerleider, Dr. Joel Fort, Dr. Duke Fisher, and also students who have been caught up in the drug abuse problem. They each give their own views to various questions concerning LSD. This was a KXRX radio broadcast that was taped. (Approximately 30 minutes)

SLIDES -- Actual photographs developed by Lt. Stan Hardeman, San Jose Narcotic Detail, with pictures of marihuana, LSD, amphetamines, barbiturates and the opiates. Also included are a set of slides showing a twenty-one year old drug addict from the starting procedures of preparing a fix to the actual mainlining (inserting the drug directly into the blood vessel with a needle) of the drug.

The slides are available through Lt. Stan Hardeman, 3450 Rocky Mt. Drive, San Jose, California 95127. Prices are as follows:

Full series of 36 slides (available on a 10-day trial basis.)

First set	$360.00
Each additional set	75.00

FILMS -- Films will be loaned only to authorized personnel in Santa Clara County high schools, through the regular ordering procedures at the Audio-Visual Department of the County Office, Attn: Mr. Durr. All films on drugs are being withheld by the County Audio-Visual Office until a list of qualified teachers is sent to the County Office. As soon as this list is received, the County Audio-Visual Department will then release films to the teachers whose names are included on the list. (Because of the special units in drug education that are being prepared by the high school districts, many of these films are being taught in a sequential manner and therefore will be held until each district has decided on how to approach the unit on drug abuse.)

Other districts or counties interested in obtaining these films can get purchase data from their county office.

LSD--INSIGHT OR INSANITY -- Color film approx. 25 min. Features Dr. Sidney Cohen, M.D., U.C.L.A., Dr. J. Thomas Ungerleider, M.D., U.C.L.A., And Dr. Duke Fisher, M.D., U.C.L.A. Shows how the current drug problem could have possibly come about through fads, curiosity, teen experimentation, rebellion, etc. Shows how a LSD trip could possibly appear to an individual. Deals with how LSD affects the central nervous system, and how dangerous the drug really is.

LSD-25 -- Color film, approx. 30 min. Published and released by the San Mateo School District from a $17,000.00 grant. Shows the dangers of LSD. The film is narrated by an individual who is supposed to be LSD actually talking. LSD then explains how he affects the body, micro-photography shows live brain neurons, and how LSD affects the central nervous system.

DRUGS AND THE NERVOUS SYSTEM -- Color film, approx. 25 min. Shows how all drugs affect the body, and the dangers of drug abuse. It also shows how drugs can be very beneficial if used the way medical science intended them to be used.

MARIJUANA -- There are many valid arguments against the use of marijuana. Why do young people challenge these arguments and find reasons to justify their use of it? Sonny Bono, of Sonny and Cher, comments on and explores in detail the reasons so often given to justify the use of marijuana and other drugs. After a dramatized presentation of both fact and opinion designed to provoke discussion, the decision is left to the viewers. Produced by Max Miller/Avanti Films, Inc. (1968). (Color film, approx. 34 minutes; price $350.)

SPEEDSCENE: THE PROBLEM OF AMPHETAMINE ABUSE -- This film offers graphic evidence against use of amphetamines in any form for other than medical reasons. Psychological dependency on these drugs frequently leads to the use of other dangerous, addictive drugs such as heroin. The most malignant form of abuse is the repeated high-dosage injection of amphetamine, one form of which is called "speed".

In addition to the physical dangers of hepatitis, malnutrition, and death are the psychological problems inherent in the life style of the "speed" culture and the user's inability to deal with his environment. A Richard Scott Production. (Color film, 17 minutes. Price $210.)

BEYOND LSD: A FILM FOR CONCERNED ADULTS AND TEENAGERS -- This film is about the communication gap between two generations: teenagers and young adults on the one hand, and the generation of those over thirty --"the establishment". The teenagers' use of LSD and other drugs is only one of the symptoms of this communication gap. In this film, a group of parents desperately seek help in order to understand what has gone wrong in their relationships with their teenagers. J. Thomas Ungerleider, M.D., of the Neuropsychiatric Institute at U.C.L.A., discusses some of the problems. The film is an attempt to go "beyond LSD," to stimulate thought and motivate discussions among high school students, college students, teachers, and parents. A Paul Burnford Production (1968). (Color film, 25 minutes. Price $300.)

THE PEOPLE NEXT DOOR -- This Emmy-winning drama from CBS Playhouse examines some of the tragic consequences of the misunderstanding, lack of communication, and distrust associated with the "generation gap." Two families face an ordeal involving a daughter who "freaks out" on LSD; her brother whose hippie appearance creates animosity and distrust in his father; and the boy next door, whose apparent respectability actually disguises his role as a drug pusher. The girl's eventual commitment to a mental institution exemplifies the tragic results of misusing dangerous drugs such as LSD. The case includes Lloyd Bridges, Phyllis Newman, Kim Hunter, and Fritz Weaver. A CBS Playhouse Production (1969). (Black and white, 79 minutes. Price $475.)

(The four films -- MARIJUANA; SPEEDSCENE: THE PROBLEM OF AMPHETAMINE ABUSE; BEYOND LSD: A FILM FOR CONCERNED ADULTS AND TEENAGERS; and THE PEOPLE NEXT DOOR -- can be obtained through BFA Educational Media, 11559 Santa Monica Blvd., Los Angeles, California, 90025.)

A SOURCE BOOK & GUIDE FOR TEACHERS ON DRUG ABUSE -- Available through the California Department of Education, Sacramento, California. Attn.: Mrs. Ruth David. This is a state publication compiled by Angela Kitzinger and Patricia J. Hill.

STUDENT MANUALS -- Purchase price is listed.

"Green -- Booklet Form Edition"

"DRUG FACTS" -- compiled by Haskell L. Bowen, Director, Santa Clara County Drug Abuse Information Center. Contains information such as definitions, identification of the drugs, physical and psychological effects of drugs, and the effects of abuse and also the legitimate medical uses of drugs. Also included is the usual single adult dose, the duration of action, the potential for tolerance, the potential for physical dependence, the overall potential for abuse, and the potential for psychological dependence. The booklet is concise and is not intended for philosophizing or for making moral judgments. It also contains several pictures such as what LSD looks like when ready for consumption on sugar cubes, capsules, etc. It also shows pictures of marijuana in the process of being formed into joints, and how marijuana appears when growing in plant form. Also included are pictures of both amphetamines and barbiturates.

Price -- $.25.

COUNSELING RESOURCE LIST AND SPEAKER LIST: Each school district should make available their own list. This should be tailor-made to meet their own needs.

TEACHER'S RESOURCE MATERIAL -- Available at a cost of $2.38 per copy through the Drug Abuse Information Center.

A compilation of current factual material by leading authorities on drug abuse. This booklet covers case histories, vocabularies, definitions, research material, lessons and a variety of other types of information on drugs.

DRUG JARGON

A. Drugs controlled by Bureau of Narcotics

1. morphine (an opiate: usually in form of a white powder, medically the most widely used of the opiates), Miss Emma, white stuff.

2. heroin (an opiate, manufactured from morphine and more potent than morphine, but is usually "cut" (diluted) to 5 - 15%. Usually in form of a white crystalline powder in paper ("bags") or capsules.) "H", horse, Harry, hairy, joy powder.

3. cocaine (pharmacologically not a narcotic, usually in the form of a white crystalline powder): Coke, "C", flake, dust, snow, Bernice.

4. meperidine (Demerol) and methadone. Most widely used and abused synthetic opiates, usual drug of addiction for physicians and nurses.

5. Cannabis (pharmacologically not a narcotic; most often considered an hallucinogen, obtained from flowering tops of female plant, Cannabis sativa, potency varies widely depending on climate, cultivation and preparation for use; grows wild in almost all countries; used throughout the world as an intoxicant).

   charas (India) - unadulterated resin from specially cultivated Cannabis sativa, is most potent form usually smoked.

   ganja (India) - tops and some resin of female Cannabis sativa; used in confections and beverages, but usually smoked.

   bhang (India) - cheap, low in potency, and usually used as a drink.

   hashish (Middle East) - when term is used correctly it refers to a powdered and sifted form of charas, is used widely to refer to any form of cannabis.

   kif - cannabis preparation used in Morocco.

   dagga - cannabis preparation used in South Africa.

   marihuana - (U.S. and Latin America - mostly dried leaves and flowers; very much less potent than charas or hashish.) Referred to as grass, rope, hay, hemp, jive, Mary Jane, pot, Texas tea.

B. Drugs controlled by Food and Drug Administration

1. barbiturates - barbs, candy, goofballs, sleeping pills, peanuts.

   pentobarbital sodium (trade name: Nembutal; in form of a yellow capsule) Yellows, yellowjackets, Nimby, Nimbie.

DRUG JARGON (Continued)

secobarbital sodium (trade name: Seconal; in form of a solid red capsule) Reds, pinks, red birds, red devils, Seggy.

amobarbital sodium (trade name: Amytal; in form of a solid blue capsule) Blue devils.

Amobarbital and secobarbital sodium (trade name: Tuinal; in the form of a red and blue capsule) Rainbows, red and blues, double trouble.

2. Amphetamine and related compounds - pep pills, bennies, wake ups, eye-openers, lid proppers, copilots, truck drivers.

amphetamines - (rose-colored, heart-shaped tablets) - peaches, roses, hearts.
- (round, white, double-scored tablets) - cartwheels, whites.
- (oval shaped tablets) - footballs.
- (brown and white capsules) - brownies.

long-acting amphetamine sulphate (capsules, found in many colors)
- coast-to-coasts, L.A. turnabouts, copilots.

injectable amphetamine plus heroin - bombido.

3. Hallucinogens

Lysergic Acid Diethylamide (semi-synthetic derivative from rye ergot; deposited on sugar cubes, animal crackers, or chewable, absorbant paper, in small ampules, crystalline form in capsules, small white pills) - LSD, acid, the hawk, The Chief, 25, The Big D, the Cube, The Beast.

Acid head	- LSD user
Acid test	- party at which LSD has been added to the punch
Explorers Club	- a group of acid heads
Freak out	- have a bad trip
Ground control	- caretaker in LSD session
Guru	- companion on a trip who has tripped before
Travel agent	- LSD supplier
Trip	- the LSD experience

Peyote (buttons from small, spineless cactus - usually in dried form; may be chewed, brewed with tea, ground and placed in gelatin capsules or made into little balls: Used ritualistically by Mexican Indians and Native American Church) - the button, tops, a moon, half-moon, cactus, the bad seed, "P".

DRUG JARGON (Continued)

Mescaline (natural alkaloid isolated from peyotl; crystalline powder dissolved in water or placed in gelatin capsules; liquid in ampule or vial) Mesc, Big Chief.

DMT (dimethyltryptamine) - 45-minute psychosis, business man's special.

Psilocybin (one of two active substances isolated from Mexican mushroom, Psilocybe Mexicana Heim in 1958; available in crystalline, powdered or liquid form; is difficult to obtain and not yet widely known to drug abusers) - no known nicknames.

C. Current terms in use on the campus drug scene

Bread - money, living expenses.

Connection - source of illegal drugs, source of inside information, an intermediary.

Contact high - becoming high merely by interacting with one who is high.

Cope - to carry on activities of daily life effectively while under the influence of drugs.

Crash - fall asleep while using drugs, come down hard and fast from a high or a trip.

Cop out - sell out to the Establishment, succumb to conventional pleasures.

Head - one who is involved with drugs to the extent that the drug has become an important part of his life, not necessarily, though often a function of frequency of personal use; usually refers to a particular drug - e.g., pothead (marihuana), acid head (LSD).

Joint - a marihuana cigarette.

Key - 2.2 lbs. of any drug, especially marihuana, compressed into brick form.

Lid - the size of a standard marihuana transaction, about an ounce.

Matchbox - usually five to eight joints of marihuana.

Roach - butt of a marihuana cigarette.

Stoned - unusually high on LSD or marihuana.

Toak - to take a puff on a marihuana cigarette.

GLOSSARY

addiction (drug)	"a state of periodic or chronic intoxication produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include: (1) an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means; (2) a tendency to increase the dose; (3) a psychic (psychological) and generally a physical dependence on the effects of the drug; (4) detrimental effect on the individual and on society."
Analeptic	CNS stimulants employed for special purpose of counteracting narcosis produced by overdose of CNS depressants.
anorexia	loss or lack of appetite.
"blind"	a term used in research to indicate that the patient or subject does not know what drug is being administered so that any prior expectations of effects of the drug he may have do not influence his response.
"double blind"	a term used in research to indicate that neither the patient nor the subject nor the experimenter know which of several drugs or placebo is given on any given occasion. Considered a must if results are attributed to the effects of the drug.
dependence (drug)	a state of psychic or physical dependence, or both, on a drug, arising in a person following administration of that drug on a periodic or continuous basis. The characteristics of such a state will vary with the agent involved, and these characteristics must always be made clear by designating the particular type of drug dependence in each specific case.
dependence (physical)	an adaptive state that manifests itself by intense physical disturbances when the administration of the drug is suspended or when its action is affected by the administration of a specific antagonist.
dependence (psychic)	a feeling of satisfaction and a psychic drive that require periodic or continuous administration of the drug to produce pleasure or to avoid discomfort; usually does not involve physiological withdrawal symptoms.
depressant	any agent that will depress (decrease) a body function or nerve activity. Depressants may be classified according to the organ or system upon which they act.

GLOSSARY (Continued)

CNS depressant (medical) - any agent that will depress the functions of the central nervous system.

"CNS depressant" (legal) - see Regulations under the Federal Food, Drug & Cosmetic Act, January 1966.

habituation (drug)
a condition resulting from the repeated consumption of a drug. Its characteristics include: (1) a desire (but not a compulsion) to continue taking the drug for the sense of improved well-being which it engenders; (2) little or no tendency to increase the dose; (3) some degree of psychic dependence on the effect of the drug, but absence of physical dependence and hence of an abstinence syndrome; (4) detrimental effects, if any, primarily, on the individual.

"Habit forming drugs" (legal) - see Regulations under the Federal Food, Drug & Cosmetic Act, January 1966.

hypnotic
a drug which induces sleep; usually refers to drugs which induce normal sleep but may include all narcotics (medical).

narcotic (medical)
a class of drugs which induce sleep and stupor and relieve pain; includes opiates, anesthetics, and others. Some pharmacologists include barbiturates, although they do not relieve pain.

"Narcotics" (legal) - see Uniform Narcotic Drug Act.

opiate
a class of drugs which have the properties and actions of opium; includes opium itself and derivatives of opium as well as synthetic opiate-like drugs not derived from opium.

placebo
"medication" composed of medically inactive ingredients (saline solution, lactose, etc.) used as a control in drug research. Used in the same form as the drug for which it is being used as a control (capsule, tablet, solution, etc.).

potentiation
the effect on the body of two drugs, particularly those with sedative properties, which is greater than the sum of the effects of each drug taken alone. One drug intensifies or potentiates the effects of the other. Potentiation may be useful in some cases but dangerous in others.

psychedelic
a term invented to describe some of the effects of LSD and similar drugs. Refers mostly to same drugs as "psychotomimetics" or "hallucinogens."

GLOSSARY (Continued)

psychotogenic
tending to produce psychosis.

psychotomimetic
a term applied to drugs producing a temporary psychotic-like response.

side effect
a given drug often has many actions on the body. Usually one or two of the more prominent actions will be desired and will be effective in the treatment of a given condition. The other, usually weaker, effects are called side effects. They are not necessarily harmful, but may be annoying. What is a side effect in one instance may be desirable therapeutic effect in another, depending on the purpose for which the drug is taken.

stimulant
any agent temporarily increasing functional activity. Stimulants may be classified according to the organ upon which they act.

CNS stimulant (medical) - any agent that temporarily increases the activity of the central nervous system.

"CNS stimulant" (legal) - see Regulations under the Federal Food, Drug & Cosmetic Act, January 1966.

tolerance
an adaptive state characterized by diminished response to the same quantity of drug or by the fact that a larger dose is required to produce the same degree of pharmaco-dynamic effect.

DEPENDENCE ON BARBITURATES AND OTHER SEDATIVE DRUGS[1]

American Medical Association
535 N. Dearborn Street
Chicago, Illinois 60610

In today's society, anxiety, tension states, insomnia, and other manifestations of stress are common. Many persons seek relief by self-medication with alcohol, and "over-the-counter" and prescription sedatives. Unfortunately, social acceptance of this kind of self-medication seems to be increasing. It is essential, therefore, that physicians maintain and strengthen their dominant role in assuring proper use of sedative medication. The responsibility includes the administration of the minimum amount of drug needed to control the patient's symptoms and the avoidance of prescribing excessive quantities of a drug, in terms of both amount and duration, which is very likely to lead to strong psychic and physical dependence[2] and compulsive abuse, particularly by emotionally unstable persons.

Historical Note

Drug abuse is probably as old as the earliest civilizations. Man has used great ingenuity in identifying substances which ease tensions, but for centuries available agents remained relatively static, limited to botanicals and their derivatives. Then, in the 1850's, modern chemistry opened a new chapter with the introduction of bromides as sedatives. There was an enormous demand for these compounds and a steady increase in their use. With use, however, came misuse and abuse which often resulted in intoxication and psychotic or delirious complications. The bromide problem began to abate in the 1930's but only because the compounds were replaced by other sedatives, primarily the barbiturates. It should be noted that chloral hydrate, recognized as a sedative in 1869, and Sulfonal had histories similar to that of the bromides.

The first barbiturate, Veronal, was introduced in 1903, and a large number of others followed in quick succession. The short-acting barbiturates, especially pentobarbital, secobarbital, and amobarbital, came into widespread use within the last 20 to 30 years. Like the bromides, they have been subject to abuse. In the United States, these drugs can be purchased on the black market and are being used either alone or in combinations, particularly with heroin, amphetamines, or alcohol.

---

[1] This statement was prepared by the AMA Committee on Alcoholism and Addiction, reviewed by the Council on Drugs, and approved by the Council on Mental Health. Journal of the American Medical Association, August 23, 1965, Vol. 193, pp. 673-677.

[2] "Dependence" (barbiturate type) has been used here to replace "addiction" in conformity with recent action of the Expert Committee of the World Health Organization.

The dependence-producing qualities of the barbiturates were not immediately recognized, but they have become increasingly clear since 1940. It should be noted, however, that the long-acting barbiturates, such as phenobarbital, are less apt to be abused than the short-acting barbiturates.

In the 1950's, a new class of drugs, the so-called minor tranquilizers, began to appear. They have a barbiturate-like action and can produce both psychological and physical dependence. This group followed the pattern of the earlier sedative drugs but at a more accelerated pace. They quickly found widespread use, found their way to the black market, and have been abused in much the same manner as the barbiturates. (See the Appendix for a list of barbiturates and other sedatives and hypnotics.)

Definition of the Problem

Barbiturate Production in the United States

A survey by the Food and Drug Administration indicates that, in 1962, approximately one million pounds of barbituric acid derivates were available in the United States. This one-year inventory is enough to supply approximately twenty-four 100-mg (1-1/2 grain) doses to every man, woman, and child in the country. An estimated 50% of these drugs were the short- and intermediate-acting barbiturates, which are particularly subject to abuse.

Estimate of Medical Need

No satisfactory method is available for estimating the legitimate medical need for barbiturate sedation, especially because of the large number of other sedatives and "tranquilizing agents" currently available. This makes it impossible to calculate accurately the prevalence and incidence of abuse. However, since it is considered probable that the available supply mirrors the demand, current production of all sedative drugs doubtless exceeds legitimate medical need by a considerable margin.

Use of Sedatives

By Physicians.--Each of the barbiturates and other drugs with a barbiturate-like action listed in the Appendix has specific clinical indications in the practice of medicine. Many medical problems, in everyday practice, are very efficaciously met by the proper and judicious use of these drugs. It must be emphasized that these drugs are a significantly valuable part of the therapeutic armamentarium for meeting genuine medical needs.

The barbiturates produced are prescribed for sedation, sometimes singly but commonly as the principal ingredient in a mixture. Their use is usually for the control of signs or symptoms of psychic, respiratory, circulatory, or gastrointestinal origin. Although mixtures of this type may be misused by the physician, they rarely serve as the basis for significant abuse by the patient because of the presence of other drugs which may not be tolerated in larger amounts.

The physician relies heavily on the barbiturates for the treatment of insomnia. These compounds are convenient and reasonably effective, despite certain adverse reactions such as "hang-over," development of tolerance, occasional rashes, and paradoxical excitation.

By Patients.--Although barbiturates and similar compounds require physician prescription, a number of substances with unpredictable sedative or hypnotic action are available "over the counter." Among these are the antihistamines, antiemetics, scopolamine, and bromides.

Misuse of Sedatives

Although the terms misuse and abuse are somewhat comparable, "misuse" is applied here to the physician's role in establishing a potentially dangerous type of therapy -- even though it does not always lead to significant tolerance or physical dependence. Examples follow:

A physician may contribute to the misuse of sedatives by

1. Utilizing prolonged and unsupervised administration of barbiturates for symptomatic relief, often without adequate diagnosis or knowledge of the patient's past experience with medications or attitude toward drugs.

2. Acceding to the patient's demands for increased quantities of the drug because of reported lack of symptom control accompanied by increases in nervous irritability and insomnia. These demands are often the result of developing tolerance to the effect of the drug. Neglect of periodic check-ups and family consultations may also lead to an increase in the patient's barbiturate intake beyond the proper therapeutic range for that particular patient and lead to undesirable effects.

3. Shifting from barbiturates to the newer sedatives in the mistaken belief of safety from abuse. The increasing number of patients heavily dependent on the substitute drugs attests to the danger of this practice.

4. Writing refillable prescriptions for barbiturates or their substitutes without thought of cumulative effects, additive action with other depressants, or the possible establishment of strong psychological or physical dependence. Since quantities of barbiturates well beyond the therapeutic range are necessary to create physical dependence, the physician has little defense for over-prescribing. Such practices are indulged in only by physicians ignorant of, or willing to ignore, the hazards involved.

Abuse of Sedatives

"Abuse" is used to describe self-administration of excessive quantities of barbiturates leading to tolerance, physical and psychological dependence, mental confusion, and other symptoms of abnormal behavior. The groundwork for drug abuse may often be established by therapeutic misuse by the physician; however, many persons will seek drug supplies from sources other than the physician. Excessive use is likely to result in the user becoming wholly dependent on barbiturates to the exclusion of other values in life. Many dependent persons seek to avoid reality, gain relief from tensions and anxieties. They take these drugs in lieu of or in addition to alcohol or opiates. Others follow the same procedure in search of paradoxical excitation and new thrills. Under such circumstances, only the unethical physician will voluntarily supply the drug to maintain a state of chronic intoxication.

Psychiatric Considerations

Generally any patient whose psychological dependence on a barbiturate drug has reached a degree sufficient to constitute drug abuse has some form of underlying psychopathology. The excessive use of barbiturates usually induces additional psychopathologic changes. The barbiturate-dependent person, in these cases, is directly comparable to the opiate-dependent person.

Drug dependence is a medical syndrome, a symptom complex, and almost always reflects some form of underlying mental disorder which has preceded and predisposed the patient to the development of drug abuse. To a great extent the drug-dependent person manifests his mental disorder through his craving for and relationship to the drug substance. Psychiatric examination usually demonstrates a significant degree of additional symptoms of psychologic and behavioristic malfunctioning. According to the specific pharmacologic characteristics of the particular drug on which the individual is dependent, there will also be many secondarily elaborated physical, physiological, psychological, and social complications and consequences. These manifestations, which vary from drug to drug and patient to patient, are discussed in other sections of this report.

The underlying reasons why an individual takes barbiturates (i.e., the psychodynamics of drug dependence) vary from person to person and may even serve different purposes at different times for the same patient. It should be noted that there are some groups in society, subject to special tension situations, for whom certain forms of "escape" are socially acceptable. In these groups, barbiturate abuse may be found particularly in adolescents and younger adults. In all cases, however, the drug-dependent person has found something that he knows will give him "relief" from tensions and anxieties which to him are unbearable. The drug is being used as an "adjustive" mechanism for living problems. It is a symptom representation, a behavioristic reflection, of some form of psychological stress-functioning; an attempt to deal with or master some form of intrapsychic imbalance, conflict, or excitation. Barbiturate dependence is seen in persons trying to deal with anxiety, guilt, aggression, inadequacy, depression, sexual urges, perversions, physical pain, and other expressions of psychoses, neuroses, and character disorders. A great variety of psychopathological reactions are inextricably interwoven with the dependency process, and practically every entity in the psychiatric diagnostic nomenclature will be seen at one time or another.

In view of these considerations, each drug-dependent patient must be individually studied, evaluated, and diagnosed in terms of specific psychodynamics, physiological status, pharmacological reactions, and sociological characteristics. Determination must be made as to whether these factors are multiple contributants and/or complications (consequences). Such evaluation is necessary before deciding on a course of therapeutic action for any particular patient. One cannot rely on general statements which purport to relate uniformly to all drug-dependent persons.

Barbiturate dependence has one characteristic in common with all other states of drug dependence. It is almost always a chronic relapsing disorder, and cycles of withdrawal and reversion to drug use are likely to occur in most cases. Success or failure, however, cannot be measured by the single criterion of relapse. In all cases, continuing treatment of the dependency state and any underlying emotional disorder is essential, even though there is intermittent, periodic, or even continuing drug use. There is good reason to believe that the total course of this disorder is influenced by adequate treatment over rather long periods.

Patterns of Abuse

Types of Abusers

Essentially there are four types of barbiturate-drug abuse, and they overlap only occasionally.

1. In the first group are persons seeking the sedative (hypnotic) effects of the drug in order to deal with states of emotional distress. This pattern may be carried to such a degree that the person looks for almost total oblivion and semipermanent stupor, is constantly in bed, and gets up only to nature's calls or to obtain more drugs.

2. In the second group there is a paradoxical reaction of excitation that occurs after tolerance has developed because of prolonged use. The drug now stimulates rather than depresses and is taken to exhilarate and animate the person to so-called increased efficiency. Cases also exist where there is an idiosyncratic pharmacologic reaction and the drug stimulates without long-term use. In still other cases, an apparent stimulation will be observed owing to the release phenomenon in which the barbiturates impair various psychological inhibitory mechanisms. In cases of this nature it is important to stress the inherent contradiction

of giving more barbiturate in an attempt to control the state of sedative-induced stimulation.

3. In a third group are persons who take barbiturates to counteract abuse effects of various stimulant drugs, such as the amphetamines. They set up a mutually reciprocating, cyclical pattern of stimulation-sedation. Each type of drug abuse tends to counterbalance the pharmacological effects of the other. Some individuals in this group try to achieve both effects simultaneously. The clinical problem, in these cases, is of a dual nature.

4. In the fourth category, barbiturate abuse is found in combination with other types of drug abuse, mainly alcohol and/or opiates. Many alcoholics attempt to counteract the withdrawal effects of alcohol with barbiturates. Frequently, alcohol and barbiturates are combined in an attempt to obtain effects that surpass those of either. This practice is especially hazardous, as the cumulative effects can easily result in very serious intoxication or death. Narcotic drug abusers will often turn to the abuse of barbiturates, particularly if opiate drugs are not readily available. If both drugs are taken at the same time, the clinical response is also very hazardous.

Suicide

Barbiturates are high on the list of suicidal poisons.[3] These suicides may be either intentional or unintentional. Most depressed patients, particularly those with psychoneurotic depressions, know that barbiturates are an effective suicidal means. Patients often accumulate large amounts of drugs by hoarding. Safeguards against this practice require a comprehensive and coordinated effort by the physician, nurse, pharmacist, and family.

Unintentional or accidental suicide falls into a different category and is usually related to two phenomena: (1) errors in the perception of the passage of time occurring at a given level of barbiturate intake and (2) the slow absorption rate, with delayed pharmacological effects, occurring after oral administration of barbiturates or similar drugs. Large quantities of barbiturates in the stomach also diminish gastric and intestinal function and further delay absorption. The user, not getting the desired effect within what seems to him a long time, continues to take tablet after tablet until he is unconscious. In the process, he may ingest a lethal dose.

Another type of accidental or unintentional suicide are those "acting-out" situations referred to as "suicidal gestures." Too often individuals will miscalculate how much barbiturate should be taken to accomplish what they are seeking and will ingest a lethal dose. In other cases, for some reason or other, the "rescuer" assigned by the patient making the suicide gesture, does not appear or does not react as anticipated. The physician must be alert to the fact that in many cases the patient casts him in the role of the "rescuer."

---

[3] Although it is beyond the scope of this article, the great importance of prompt and knowledgeable treatment of acute barbiturate poisoning is stressed.

Diagnosis of Misuse and Abuse

General

In an attempt to conceal their problems, many patients will give unreliable and misleading information. The physician should suspect dependence on sedatives if members of the family report that the patient is sedated, confused, ataxic, incoordinate, and irritable. Although it is important to secure a detailed history of drug use from the patient and his family, information from these sources is often misleading. In contrast to narcotic abusers who usually overstate their intake in an effort to obtain more of the drug, the barbiturate abuser generally understates his intake. He may report taking one or two tablets a night for sleep, whereas subsequent investigation may reveal that the patient has made multiple purchases and that his daily ingestion is large enough to be associated with strong physical dependence. However, there are patients who, under certain circumstances, will overstate their drug intake to procure larger amounts. This occurs most commonly in patients entering a hospital.

Early diagnosis of barbiturate abuse and/or dependence is often difficult. In many cases, drug dependence or intoxication is diagnosed only after hospitalization of the patient for some other clinical condition. Often the first objective finding of barbiturate dependence is the onset of acute withdrawal, perhaps a single, unexplained grand mal seizure brought on by sudden abstinence. A diagnosis of drug dependence may be overlooked because of general unfamiliarity with the barbiturate-withdrawal syndrome. Drug dependence may be difficult to detect when a state of acute barbiturate intoxication or poisoning involving intentional or unintentional overdosage is superimposed. Such intoxication may occur in both the drug-dependent and nondependent person. Barbiturate abuse may also be confused with acute depression, neurosis, schizophrenia, brain tumor, or other neurologic and psychiatric disorders.

Intoxication

Early diagnosis based on definitive clinical evidence is essential. Intoxication with barbiturates resembles intoxication with alcohol. Symptoms and signs include various degrees of clouding of consciousness with impairment of mental functioning, confusion and poor judgment, euphoria or depression, loss of emotional control, irritability, abnormal behavior, and occasionally convulsions or signs of a toxic psychosis. Patients will also show objective signs of dysarthria, ataxia in gait and station, muscular incoordination, nystagmus, adiadochokinesia, ptosis, pupillary changes, and hyporeflexia or areflexia either symmetrically or asymmetrically. Coma is unusual, as is inanition. Signs of inanition suggest that large amounts of amphetamines or alcohol have also been used. Respiratory rate and volume are not greatly depressed. The intensity of symptoms is variable and partly related to food intake, since the effects of the barbiturates appear sooner and are much more intense if the drug is taken into an empty stomach.

Tolerance

Patients often request increases in dosage, particularly of the short-acting barbiturates, because of diminished hypnotic effectiveness. Within limits, progressive increases in dosage result in increasing tolerance to subjective effects. This may be partially avoided by shifting to the long-acting barbiturates, barbital or phenobarbital, or to sedatives of a different chemical type. Tolerance, since it permits the ingestion of large doses with minimal ataxia and psychotoxicity, may be an important factor in the development of physical dependence. In contrast to that with the opiates, tolerance with barbiturates does not result in a very significant increase in the lethal dose, as evidenced by the low survival rate of "suicides" in barbiturate-dependent persons.

Withdrawal Syndrome

Sudden and abrupt withdrawal of barbiturates from a person who is physically dependent results in definite abstinence signs and symptoms. Their intensity varies according to the dose taken, the length of time the patient has been physically dependent, the degree of intoxication produced by doses consumed, and individual factors which remain incompletely understood. During the first eight hours after abrupt withdrawal, signs and symptoms of intoxication decline and the patient appears to improve. As these signs and symptoms recede, increasing anxiety, headache, twitching of various muscle groups, nervousness, tremor, weakness, impaired cardiovascular responses when standing, and vomiting become evident. They become fairly intense after 16 hours of abstinence and are rather severe after 24 hours. Between the 30th and 48th hours of withdrawal, convulsions of grand mal type are very likely to occur. Occasionally, convulsive seizures are observed as early as the 16th hour and as late as the eighth day. Frequently, there is a period of post-convulsive confusion lasting for one or two hours. At times, there will be increasing insomnia culminating in a state of delirium, closely resembling delirium tremens and characterized by confusion, marked tremors, disorientation, hallucinations, and delusions. Ordinarily the delirium lasts less than five days and ends with a prolonged period of sleep.

Even though no treatment is given, the entire withdrawal syndrome is usually a self-limited condition. Clinical recovery appears to be complete and no organic sequelae are known to occur. However, patients have died during uncontrolled, untreated barbiturate-withdrawal syndromes.

Treatment of the Withdrawal Syndrome

Since significant abstinence symptoms and signs do not occur even after long-term ingestion of comparatively small doses (less than five therapeutic doses in 24 hours), it is theoretically possible to withdraw patients on a small-dosage regimen on an ambulatory basis. However, this is rarely successful, as it requires the complete cooperation of a person who probably has a strong psychological dependence on the drug.

Withdrawal of persons with strong physical dependence may be life-threatening and can only be accomplished satisfactorily, and with reasonable safety, in a drug-free environment where hospital and nursing facilities are available.

When barbiturates are the addicting drug, withdrawal must be accomplished very slowly and carefully. Manifestations of mild barbiturate abstinence, such as anxiety, weakness, nausea, and tremor, signal the danger of impending convulsions and/or psychosis. Patients in this condition should be given a short-acting barbiturate at once. Experience has demonstrated that sodium pentobarbital, 200-400 mg (3-6 grains) orally or parentally, is extremely effective. If the syndrome is not relieved within one hour, the dose should be repeated. Subsequent withdrawal consists of a graduated, four-times-daily administration of barbiturates, at the dose level which just maintains a mild degree of intoxication. Usually 200-300 mg (3-4 grains) of sodium pentobarbital, four times a day, will suffice. Clinical evidence of sedation is essential. Further reduction can begin after one or two days of observation, but the dosage should not be reduced more than 100 mg (1-1/2 grains) daily. If abstinence signs or symptoms recur, the dosage should be temporarily increased. Close observation is required because of concomitant mental confusion, lethargy, muscular incompetence, apprehension, and possible convulsions. Supportive measures such as restoration of electrolyte balance, proper hydration with I.V. fluids, and vitamins are also in order. The usual nursing care and ward routine applicable to patients with convulsive disorders, confusion, or delirium states should be maintained.

Definitive Treatment and Aftercare

The role of the physician does not terminate when withdrawal of the drug from the patient has been completed. This is actually the real starting point for meeting the problem of any patient's drug dependence. Continuing contact and help are essential and must be maintained over a long period. If such help is not forthcoming, relapse to the use of drugs is almost inevitable. Each drug-dependent person must be treated as an individual and should have a complete medical, psychological, and sociological assessment. He should receive the best available treatment in terms of his own particular psychological, physical, and sociological needs.

Psychiatric referral, as indicated and feasible, should be made on either a public or private basis. The general practitioner can also administer such forms of psychotherapy as he is qualified to carry out. Even in cases where specific psychotherapy is not feasible, the physician can function effectively in a supportive and rehabilitative role, helping the drug-dependent patient to develop ways of handling tensions and anxieties without resorting to drugs.

Physicians should play an important role in the mobilization of social resources for aftercare and in providing supervision and follow-up treatment. The use of community resources, such as voluntary and governmental social agencies, can be of great value to the physician in his treatment of the drug-dependent person. Any effort that may contribute toward better adjustment in social, cultural, economic, and industrial spheres is specifically indicated in the rehabilitation of the patient.

State civil statutes providing for compulsory in- and outpatient treatment, rehabilitation, and follow-up of persons suffering from dependence on sedative drugs have been very helpful. Unfortunately, few states have such laws. In general, such statutes should be comparable to the modern and enlightened statutes for the commitment of mentally ill persons.

APPENDIX

Hypnotic and sedative drugs comprise a large group of chemically unrelated substances which have the common property of inducing sedation and sleep with small quantities and anesthesia with large quantities. Barbital and its congeners represent the largest single group of these compounds.

The following drugs are on the U.S. market:

Barbiturates

- Barbital (Veronal)
- Mephobarbital (Mebaral)
- Metharbital (Gemonil)
- Phenobarbital (Luminal)
- Amobarbital (Amytal)
- Aprobarbital (Alurate)
- Butabarbital (Butisol)
- Diallylbarbituric acid (Dial)
- Probarbital (Ipral)
- Talbutal (Lotusate)
- Vinbarbital (Delvinal)
- Cyclobarbital (Phanodorn)
- Heptabarbital (Medomin)
- Hexethal (Ortal)
- Pentobarbital (Nembutal)
- Secobarbital (Seconal)
- Hexobarbital (Cyclonal, Evipal, Sombulex)
- Methitural (Neraval)
- Methohexital (Brevital)
- Thiamylal (Surital)

Drugs with Barbiturate-Like Action

- Chlormezanone (Trancopal)
- Emylcamate (Striatran)
- Meprobamate (Equanil, Miltown)
- Oxanamide (Quiactin)
- Phenaglycodol (Ultran)
- Mebutamate (Capla)
- Carisoprodol (Soma)
- Hydroxyzine (Atarax, Vistaril)
- Ectylurea (Levanil, Nostyn)
- Ethchlorvynol (Placidyl)
- Methyprylon (Noludar)
- Ethinamate (Valmid)
- Chlordiazepoxide (Librium)
- Hydroxyphenamate (Listica)
- Mephenoxalone (Trepidone)
- Carbromal (Adalin)
- Bromisovalum (Bromural)
- Chloral Betaine (Beta-Chlor)
- Glutethimide (Doriden)

Barbiturates

Thiopental (Pentothal)
Allylbarbituric acid (Sandoptal)
Butethal (Neonal)
Cyclopentenyl allylbarbituric acid (Cyclopal, Cyclopen)
Butallylonal (Pernocton)

Drugs with Barbiturate-Like Action

Chloral Hydrate (Somnos, Noctec, Loryl)
Diazepam (Valium)
Methylparafynol (Dormison)
Petrichloral (Periclor)
Buclizine (Softran)

MOTHER'S LITTLE HELPER?
AMPHETAMINE AND BARBITURATE ABUSE[1]

N.J.H. Mansfield
Former Research Assistant, N.A.F.

Great publicity has recently been afforded to the so-called "hippie" phenomenon among which group the use of drugs is said to be flourishing. It is against the "hippies" and the narcotic addict group that one finds outspoken condemnation for drug use. However, it is becoming more and more apparent that the abuse of mood-changing drugs is much more extensive, involving people in all socio-economic classes.

Amphetamines, Depressants and Social Norms

This is not to say that the middle-class housewife injects herself with heroin or dabbles in the psychedelic scene. Instead, she seems to use and abuse those seemingly innocuous preparations prescribed by the family doctor which fit into the category of "controlled drugs"[2] and outlined in The Food and Drug Act as: amphetamine and its salts; barbituric acid and its salts and derivatives; benzphetamine and its salts; and methamphetamine and its salts. These are more commonly referred to as stimulants or "pep pills" (amphetamines), and depressants (barbiturates).

It should be noted that while middle-class housewives and others use a large number of depressants and stimulants, they do not do so illegally, or for the pleasure which they provide. Rather, indications are that the use of these drugs is related to the strains and tensions of modern living and to the cultural acceptance and "respectability" of the drugs themselves. Yet, dependency on these drugs varies from others mainly in the way they are obtained. It is quite acceptable to obtain a prescription for dexedrine in order to diet or to allay fatigue, while it is quite illegal to purchase a paper of "crystal"--an injectable methamphetamine "speed" compound used specifically by young people to "turn on".

The source of the drug and its ostensible purpose, then, tend to be the focus of social evaluation, rather than the actual pattern or quantity of use. The implications of this type of division are twofold: (a) the source of supply is a constant from which deviance is measured, and (b) abuse is thought to be anti-social and deleterious only when the source of supply is illegal, even though both the deviant user and the user of prescription drugs may be equally habituated. It can be seen that within a social system, use of amphetamine and barbiturate preparations can be accepted--even condoned--by the members of a social group, since it is used

---

1. Published by The Narcotic Addiction Foundation of British Columbia, 2524 Cypress Street, Vancouver 9, B.C. (September, 1969). Originally reprinted from Canada's Mental Health, Vol. XVII, No. 5, Sept.-Oct., 1969.

2. The Food and Drug Act and Regulations, Queen's Printer, Ottawa, 1967, p. 10.

within the framework of their social norms. The norms that govern this usage are therefore in question since it is by the group's own evaluation that such activity as continual use of controlled drugs is accepted.

The World Health Organization[1] recognizes amphetamine type dependence as a desire or need to continue regularly or intermittently the use of amphetamines, and a tolerance and tendency to increase the dose. WHO further states that there is psychic dependence but no physical dependence, and so no abstinence syndrome; in some cases, continued use leads to severe toxic psychosis; and finally, amphetamine and barbiturates are often taken alternately and successively, each to counteract the effects of the other.

Barbiturate type dependence, on the other hand, is explained by WHO as arising from the continuous use of any barbiturate, or perhaps of any drug with sedative or hypnotic properties generally, in amounts exceeding therapeutic dose levels. The desire to continue the drug is strong; increasing dosage is "partly" due to tolerance; there are psychic and physical aspects to the dependence; the abstinence syndrome is as characteristic as that caused by drugs of morphine type. Finally, according to WHO, the abstinence illness, although self limiting, is probably more dangerous than that due to morphine-like drugs.

One does not need much imagination to see the implications of the use of these drugs. Short-term use for therapeutic purposes may help a patient enormously, but long-term use almost certainly leads to a less discriminate intake, and the idea of having one to counteract the other creates the image of a potentially dangerous "vicious circle". As Halliday[2] stresses, this process of dual abuse of amphetamines and barbiturates is well developed in England, "much larger than the numbers taking heroin", and from all indications is flourishing in Canada and the United States. Barbiturates and amphetamines are therefore not the "innocuous compounds" they are popularly held to be, but can be physically and mentally harmful and can lead to fatal consequences.

Despite well publicized warnings in regard to use of barbiturates, especially when combined with alcohol, and warnings that "speed kills", there is an ever increasing number of overdoses on controlled drugs. The Metropolitan Vancouver Board of Health reported a 66% increase in deaths resulting from barbiturate overdoses between 1966 and 1967, with 49 deaths in 1965, 75 in 1966, and 109 in 1967. Combined with this, there were innumerable overdoses which were treated just in time to prevent fatalities. These figures seem to be borne out in other areas and in other studies done on barbiturate use.

Spreading Use of Control Drugs

Another indication of the spreading use of control drugs is the opening of institutions and treatment centres in order to examine stimulant use more fully. A pilot study conducted at the California Rehabilitation Centre since 1961 has demonstrated certain indices of stimulant use (methedrine "crystal"). A comparison of stimulant addicts with narcotic addicts showed that the typical methedrine addict tends to be a white "Anglo" from the San Francisco Bay Area (different from most Black and Mexican American Los Angeles narcotic addicts); that the stimulant addict appears to be more literate and probably has a somewhat higher I.Q., more school education, and higher socio-economic background than the average narcotic addict, who comes predominantly from the lower middle-class; and that, unlike heroin addicts who prefer to withdraw and relax, methedrine users wish to speed up, act and accomplish.[1]

---

[1] W.H.O. Expert Committee on Addiction Producing Drugs: World Health Organization Technical Report Series, 1964, 273, 1.

[2] Halliday, Robert, "Barbiturate Abuse: An Iatrogenic Disorder," B.C. Med. J., Vol. 9, No. 10, Oct. '67, pp. 374-78.

This pattern of amphetamine user types and behavior holds reasonably constant throughout the professional literature. The best example of the middle-class methamphetamine user is described by Prout,[2] who found that admissions to Winchester Hospital of amphetamine and barbiturate habituated women was 1/3 higher than that of men, and that in his study sample, the average age was 37 and the socio-economic background was in the professional and white collar category. Also, most of the patients had easy access to both barbiturates and amphetamines through their occupations, or through close social and professional interrelations with practitioners.

It is quite clear from all the medical literature in Canada, Britain and the United States that the vast majority of amphetamine and barbiturate problems which arise in adult society are due to drugs prescribed almost exclusively by family doctors, most of whom do not appear to appreciate the dangers and who have to cope with demands from these patients for the drugs which apparently are not doing them any harm. Connell[3] documents this prescribing procedure, noting that many practitioners may prescribe these drugs for years.

However, not all medical practitioners are as enthusiastic as some of their colleagues. A local narcotic control inspector made the observation that the heavy prescribing of amphetamines and barbiturates varies from outlet to outlet, possibly depending on which pharmacies are readily available to individual doctors and their patients. He also said that some drug stores have very heavy amphetamine and barbiturate flows, while others have small ones. This would possibly indicate either a real difference in prescribing practices of physicians, or different policies of pharmacists toward the dispensing of controlled drugs.

---

1. Fischmann, V.S., International Journal of the Addictions, Vol. 3, No. 1, 1968, pp. 123-29.

2. Prout, C.T., New York State Journal of Medicine, May 15, 1964, pp. 1186-1192.

3. Connell, P.H., British Journal of Addictions, Vol. 60, Aug. 1964.

Although physicians are occasionally questioned about prescribing large quantities of amphetamines and barbiturates to any one patient, federal food and drug authorities can take little action if these drugs are being used in the treatment of a medical condition. Obesity is one of the main reasons for prescribing amphetamines, as well as lethargy and narcolepsy. At the same time, barbiturates and tranquilizers are used to relieve tension, often caused by the amphetamines themselves. This may explain why Vancouver drug stores, which have a heavy amphetamine flow, also dispense large quantities of barbiturates.

Two Vancouver hospitals indicate an ever increasing number of emergency admissions for drug intoxication. It is the barbiturates in particular that are the cause, possibly because they produce more violent reactions than amphetamines, especially when combined with alcohol. But hard information on this type of drug abuse is quite sketchy, and for a number of reasons. First, some medical practitioners exercise little or no caution in prescribing diet pills, "pep up" pills, and depressants to their regular patients, possibly because they do not fully realize that extended use has turned into abuse, or because pressure is influenced on them to prescribe --often for social reasons. Second, because they are using "prescription" drugs, many people rationalize their drug abuse as an innocuous practice having nothing to do with illegality. Third, the urban, suburban and affluent scene has opened up many new areas of social engagement. Drugs provide both the energy to engage and the ability to disengage, through induced sedation. Finally, modern chemical technology has developed a wide variety of short-term chemical solutions to individual psychic and social problems. Moreover, there seems to be little attempt to assess some of the long-term implications and complications of this type of treatment. It is conceivable that with the increasing popularity of chemotherapy, neurotic symptoms may be encouraged in individuals who know that relief is cheap, apparently effective, and easily accessible.

The extremely widespread abuse of prescribed amphetamines has become a social problem well catalogued in the United States, Sweden, Australia and Japan. For example, the Food and Drug Administration in the United States reported[7] that in 1962, over 100,000 pounds of legally available amphetamine and methamphetamine products were available on the market. This one year's inventory was enough to supply 250 mg. of these stimulants to every man, woman and child in the country, i.e., 25-50 doses per person!

Just when does amphetamine and barbiturate use become abuse? Certainly the scope of its current use comes well within the abuse definition of the World Health Organization. And when youth refer to adult "pill scoffing" to rationalize their own experimentation with drugs, how can we as adults really blame them? In fact, in some youth circles amphetamine and barbiturate compounds are actually referred to as "mother's little helpers". That such a phrase should be coined at all only reflects the widespread use of stimulants and depressants among adults. Perhaps the "soma society" envisioned by Aldous Huxley is not a pipe-dream after all, but a problem that has not yet reached its tragic peak.

---

1. A.M.A. Committee on Alcoholism and Addiction, Dependence on Amphetamines and Other Stimulant Drugs, J.A.M.A., Sept., 1966, Vol. 197, No. 12.

DEPRESSANTS (SEDATIVES-HYPNOTICS)
FACT SHEET - 4

From the Bureau of Drug Abuse Control
Food and Drug Administration
U.S. Department of Health, Education, and Welfare
Washington, D.C.

This group includes the barbiturates, the most widely abused among the depressants.

Medical Uses

Barbiturates depress the central nervous system, and are prescribed in small doses to induce sleep. They are also valuable in cases of acute anxiety, hyperthyroidism, and high blood pressure. Because of their sedative but non-analgesic effects, barbiturates are used in treating both physical and mental illnesses.

Abuse

Continued and excessive dosages of barbiturates result in slurring of speech, staggering, loss of balance and falling, quick temper, and a quarrelsome disposition. Overdoses, particularly when taken in conjunction with alcohol, result in unconsciousness and death, unless given proper medical treatment.

While an unsteady gait and speech problems may be signs of neurological disorders, such as multiple sclerosis, such diseases are uncommon among young men. Usually, the appearance of drunkenness without an alcoholic breath indicates barbiturate intoxication.

Although physical dependence does not develop with the dosages normally used in medical practice, it does occur with the excessive doses used by drug abusers. A tolerance is also developed. Withdrawal symptoms usually are far more dangerous than those resulting from narcotics withdrawal.

The Barbiturates

Barbiturates are known to drug abusers as "barbs", "candy", "goofballs", "sleeping pills", or "peanuts". Specific types are often named after their color or shape. For example:

1. Pentobarbital sodium (in solid yellow capsule form) is known by abusers as "yellows", "yellow jackets", or "nimbies" (after a trade name of this drug).
2. Secobarbital sodium (in red capsule form) is called "reds", "pinks", "red birds", "red devils", and "seggy" and "seccy" (after trade names).

3. Amobarbital sodium combined with secobarbital sodium (in red and blue capsule form) is known as "rainbows", "red and blues", or "double trouble".

4. Amobarbital sodium (in solid blue capsule form) is known by abusers as "blues", "blue birds", "blue devils", or "blue heavens".

STIMULANTS
FACT SHEET - 6

From the Bureau of Drug Abuse Control
Food and Drug Administration
U.S. Department of Health, Education, and Welfare
Washington, D.C.

This group of drugs, which includes the amphetamines, directly stimulates the central nervous system, producing excitation, alertness, increased initiative and activity, and an ability to go without sleep for protracted periods of time.

Medical Uses

Amphetamines are prescribed for overweight patients, to reduce their appetites; in cases of narcolepsy, a disorder characterized by an overwhelming desire for sleep; for Parkinson's disease; and in some cases of minor mental depression.

Abuse

Because the body develops a tolerance to amphetamines, abusers increase their dosages gradually, which wildly exaggerates the normal effects of these drugs and results in excitability, talkativeness, tremor of the hands, enlarged pupils, and heavy perspiration. In serious cases, a drug psychosis resembling schizophrenia develops with delusions and hallucinations, both auditory and visual. These effects are particularly dangerous to long-distance drivers. They may take amphetamines to ward off sleep, and may be unaware of their fatigue until it overcomes them, and they cause serious highway accidents.

Criminals frequently use amphetamines to increase their courage and alertness during their exploits.

While amphetamines do not cause physical addiction, abusers develop a psychic or emotional dependence on these drugs. Continued abuse of amphetamines can cause high blood pressure, abnormal heart rhythms, and even heart attacks.

The Amphetamines

Amphetamines are known to drug abusers as "pep pills", "wake-ups", "eye-openers", "co-pilots", "truck drivers", or "bennies". As with other dangerous drugs, the slang names frequently are derived from the shapes and colors of capsules and tablets, their effects, or their uses. Some examples are:

1. Amphetamine sulfate (in rose-colored, heart-shaped tablets) is known as "peaches", "roses", "hearts", or "bennies".

2. Amphetamine sulfate (in round, white, double-scored tablets) is called "cartwheels", "whites", or "bennies".

3. Long-acting amphetamine sulfate capsules (found in many colors) are known as "coast-to-coasts", "L.A. turnabouts", "co-pilots", or "browns".

4. Amphetamine sulfate (in oval-shaped tablets of various colors) is called "footballs" or "greenies".

5. Injectable amphetamine (in the jargon of the abuser) is called "bombido", "jugs", or "bottles".

6. Dextroamphetamine sulfate (in orange-colored, heart-shaped tablets) is known as "hearts", "oranges", or "dexies" (after a trade name of this drug).

ABUSE OF BARBITURATES AND AMPHETAMINES[1]

Maurice H. Seevers, M.D.
Professor and Chairman, Department of Pharmacology,
University of Michigan Medical School,
Ann Arbor, Michigan

Since World War II, the pattern of use and abuse of drugs which are capable of creating behavioral problems by exerting a toxic effect on the nervous system has changed so significantly as to require a re-evaluation of concepts and definitions in this whole field. National recognition was given to these changes by the White House Conference on Narcotic and Drug Abuse held in September 1962 and the subsequent appointment of a Presidential Advisory Commission on Narcotics and Drug Abuse.

Three principal factors have contributed to these changes: (1) altered social patterns in large urban areas, especially among juveniles, (2) wide dissemination of information, factual and otherwise, about drugs which are purported to produce pleasant subjective effects, and (3) the relative scarcity of illicit narcotics of the morphine type due to punitive legislation and diligent control measures.

Drug abuses are so varied that the terms "habituation" and "addiction" are no longer adequate to describe them. "Drug dependence," a term adopted by the World Health Organization, is broad enough to include not only chronic abuse but also single and intermittent use of excessive quantities on a "spree" basis. Drug sprees often create sociologic and criminologic problems more serious than those stemming from chronic drug abuse. For example, a person who takes a large amount of cocaine or amphetamine intravenously may become violent while in a hallucinatory or delusional state.

In much of our literature "addiction" has been inextricably linked to tolerance and physical dependence. These two biologic phenomena are physical factors which influence significantly the course of chronic intoxication with certain drugs and reinforce the psychologic factors involved in dependence. However, they are not essential to creation of psychic dependence on a drug, its compulsive abuse, or the induction of psychotoxic effects that may lead to antisocial behavior. Neither cocaine nor marihuana, for example, produces tolerance or physical dependence, yet abuse (especially of cocaine) may give rise to dangerous antisocial behavior. Limitation of space precludes a detailed discussion of even the principal (and interrelated) factors in this complicated medical and sociologic problem (figure 1).

---

[1] Postgraduate Medicine, Vol. 37, No. 1, January, 1965, pp. 45-51.

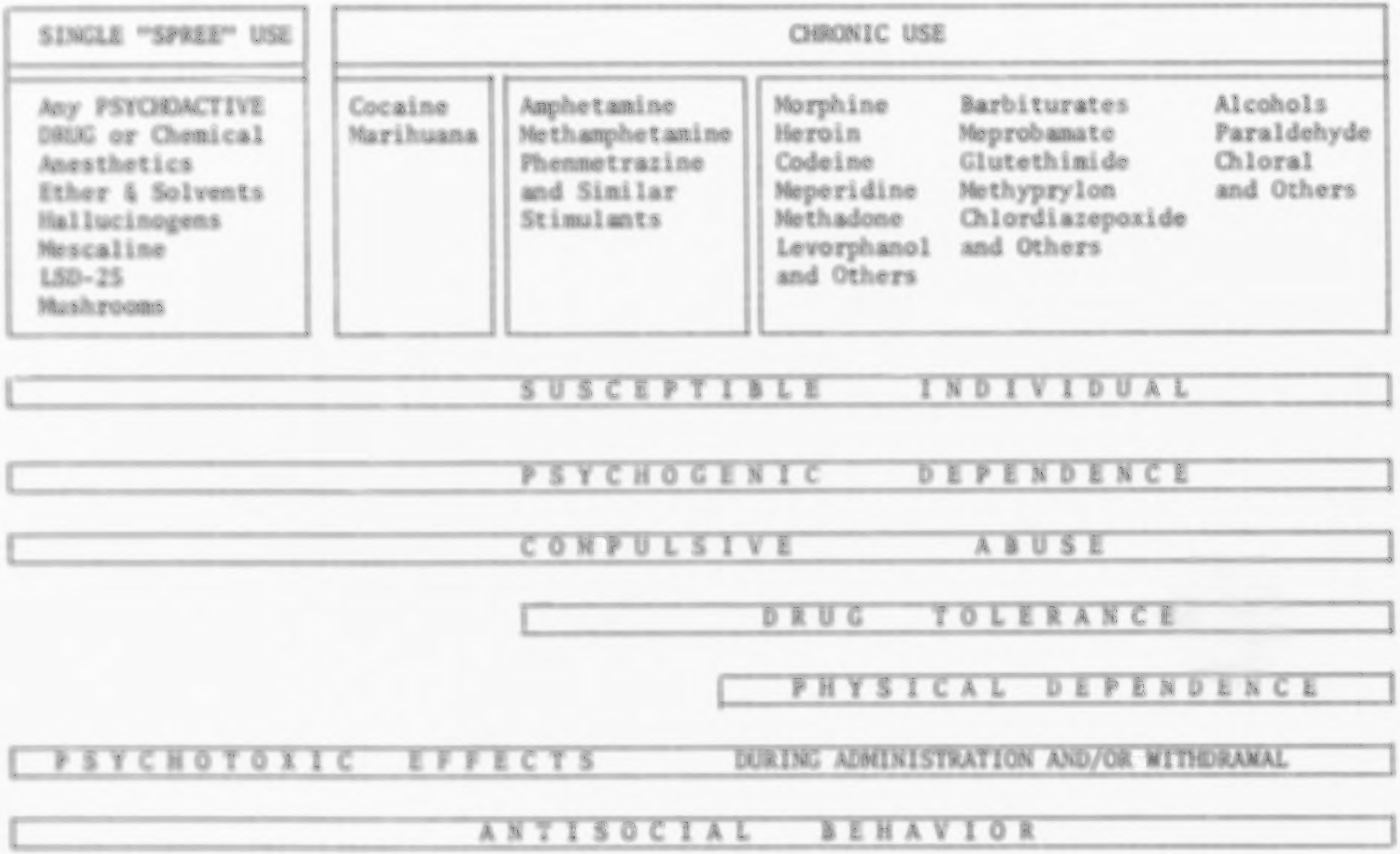

SINGLE "SPREE" USE
CHRONIC USE
Any PSYCHOACTIVE DRUG or Chemical
Anesthetics
Ether & Solvents
Hallucinogens
Mescaline
LSD-25
Mushrooms
Cocaine
Marihuana
Amphetamine
Methamphetamine
Phenmetrazine
and Similar Stimulants
Morphine
Heroin
Codeine
Meperidine
Methadone
Levorphanol
and Others
Barbiturates
Meprobamate
Glutethimide
Methyprylon
Chlordiazepoxide
and Others
Alcohols
Paraldehyde
Chloral
and Others
SUSCEPTIBLE INDIVIDUAL
PSYCHOGENIC DEPENDENCE
COMPULSIVE ABUSE
DRUG TOLERANCE
PHYSICAL DEPENDENCE
PSYCHOTOXIC EFFECTS DURING ADMINISTRATION AND/OR WITHDRAWAL
ANTISOCIAL BEHAVIOR

FIGURE 1.

ELEMENTS OF DRUG ABUSE

Drug abuse, although fairly widespread, involves only a small fraction of the population. Only certain emotionally maladjusted persons seek this form of escape, and many factors (genetic, medical, psychologic, cultural, sociologic, economic) are contributory.

Every psychoactive drug or chemical is potentially subject to abuse. Although attention recently has been called to abuse of solvents (model airplane glue) by teen-agers and of hallucinogens (LSD-25, mescaline) by "long-hair" and beatnik groups, the major problem of drug abuse in the United States at present, excluding alcohol and the morphinelike substances (heroin, opiates, synthetic narcotic analgesics), involves the barbiturates, amphetamines and pharmacologically related substances--the "dangerous drugs". Accurate information concerning the extent of their abuse is unavailable, but calculations based on production suggest a comparatively large excess in relation to the estimated legitimate medical needs. Careful epidemiologic studies are badly needed.

Despite the fact that these drugs are legally available only by prescription, the incidence of abuse has risen steadily. Experience with existing narcotic laws strongly indicates that it would be unwise to introduce similar legislation to control the "dangerous drugs". The ensuing discussion is an attempt to outline the general patterns of abuse of these two classes of drugs. It is hoped that pharmaceutical manufacturers, pharmacists and physicians will recognize the scope and significance of the problem and will take steps to avert this form of punitive legislation, which not only fails to prevent abuse but also opens a Pandora's box of evil consequences.

Dependence on Barbiturates and Related Drugs

The abuse characteristics of barbiturates and drugs producing similar pharmacologic effects have much in common with those of ethyl alcohol, but there are also several distinctive properties. These drugs exert effects on mentation and somatic functions which are often pleasurable to neurotic and irritable persons and lead to strong psychic dependence. Alcoholics may use them as substitutes for liquor in attempts to conceal their habit. The drugs are effective when taken orally and do not produce gastric irritation or other significant side effects. Physical dependence requires the use of large doses but is associated with a life-threatening withdrawal syndrome marked by delirium and convulsions. Perceptual distortion of time coupled with slow absorption may lead to "involuntary" suicide.

Psychic dependence is a formidable factor in the habitual use of this class of substances. It may exist in all grades and does not necessarily lead to abuse. Prescription of sedative or hypnotic doses to be taken daily over a long period, even many years, is not inconsistent with good medical practice. Many patients have been denied the benefits of proper sedative medication because physicians have been misinformed in this regard. Although the patient may become psychologically dependent on such medication, this is not harmful by itself if certain conditions are maintained. It is the physician's obligation to prescribe suitable doses to be taken at wide enough intervals so that the subjective effects are limited to those required to achieve the therapeutic objective. It is also his responsibility to dispel any misconception the patient may have concerning the actions of the drug. Patients who take excessive amounts of these drugs often cite as a reason the fear that they will be unable to sleep; as tolerance develops, they take the drugs more and more frequently until toxic symptoms and signs appear.

The early diagnosis of barbiturate abuse is difficult. In many instances, severe dependence is discovered only when the patient is hospitalized. The condition may be erroneously diagnosed as acute barbiturate poisoning (largely from accidental or intentional overdosage), acute depression, neurosis, schizophrenia, brain tumor, or other neurologic or psychiatric disorder. Symptoms and signs include various degrees of clouding of consciousness, euphoria, irritability or depression, dysarthria, ataxia, tremor, nystagmus, ptosis, pupillary changes, and hyporeflexia or areflexia, either symmetric or asymmetric. Determination of the concentration of barbiturate in the blood is helpful under some circumstances but is not of value in estimating the total amount taken or the duration of administration. Many patients attempt to conceal their dependence, and the information furnished by them may be unreliable or misleading. Suspicion of drug dependence may be aroused if the family reports that the patient is often confused at home.

Two general types of severe barbiturate abuse are common. Some patients stay in bed, seeking oblivion and semipermanent stupor and arising only to answer nature's demands or to obtain more drug. A second and paradoxical type of reaction occurs in some persons in whom tolerance has developed following prolonged use; the drug has a stimulatory effect and is taken to "increase efficiency". A type of abuse practiced especially by juveniles involves intravenous self-administration of illicitly obtained barbiturate to the point of unconsciousness.

The difficulties in diagnosis emphasize the physician's obligation to follow carefully the course of sedative therapy. Only in this way can he evaluate a patient's susceptibility to drug abuse and take the necessary preventive measures. It is improper medical practice to write prescriptions for large quantities of barbiturates or other drugs of this general class. The prescriptions should be "nonrefillable". The laxity of physicians in this regard is one, if not the primary, cause of abuse during or following therapy.

There are three important reasons why patients should not have access to large quantities of these drugs.

1. Physical dependence will not develop if a controlled, small-dose regimen is followed. Comparatively large doses of barbiturates are necessary to induce physical dependence, and these doses are often sufficient to induce psychotoxicity and detectable symptoms and signs even in tolerant individuals.

2. Availability of large quantities may lead to "involuntary" suicide. This danger is related to the perceptual distortion of time which occurs at a given level of barbiturate (or alcohol) intoxication and to the slow absorption and delayed pharmacologic effects after oral administration. The presence of a large quantity of barbiturate in the stomach also diminishes gastric and intestinal function and further delays absorption. The barbiturate user who fails to obtain the desired effect from a prescribed dose within what seems to him to be a long period of time will ingest tablet after tablet. Slow absorption makes it possible for him to take a lethal dose before he becomes unconscious. The alcoholic may also "pour it down" when in a semiconscious state, but the absorption of alcohol is sufficiently rapid so that coma usually supervenes before a lethal dose is taken. Moreover, the irritating properties of alcohol in large amounts may evoke emesis.

3. Voluntary suicide with barbiturates is facilitated by the availability of large quantities, commonly accumulated by "hoarding". Avoidance of this risk requires comprehensive and coordinated efforts by physicians, nurses and pharmacists.

Although some tolerance develops to the short-acting barbiturates, it does not increase significantly the size of the lethal dose. Tolerance is probably the result of an increased rate of enzymatic breakdown and is measured in terms of reduction in sleeping time and a lessening of symptoms and signs of toxicity. Paradoxically, persons who have received large amounts of barbiturates and are then given the drugs again after a "free period" are likely to exhibit an exaggerated response the second time; this is termed post-tolerance sensitivity. Comparatively little tolerance develops to barbital and phenobarbital, whose detoxication depends largely on renal elimination.

Physical dependence on barbiturates differs significantly from physical dependence on the morphinelike analgesics. The response to the morphine drugs parallels the amount given until a comparatively high dosage is reached. Then it levels off, and little further increase occurs even when maximum tolerated doses are given. The barbiturates, like alcohol, must be given continuously for months (minimum effective quantity, possibly between 0.3 and 0.5 gm. in 24 hours) before an abstinence syndrome is detectable on withdrawal. Maximum physical dependence develops only if large quantities are used (1 to 2.5 gm. per 24 hours). Dependence on barbiturates, when fully developed, is a greater threat to life than dependence on morphine. The barbiturate must be withdrawn slowly by a gradual reduction in dosage over 8 to 10 days in order to avoid the most dangerous manifestations. Sudden withdrawal of large doses induces a life-threatening syndrome characterized by psychotic manifestations, including delirium, hallucinations, hyperpyrexia, and tonic and epileptic-form seizures.

It has become a rather common practice to substitute phenothiazines for barbiturates in order to shorten the withdrawal period. Whereas logic favors this procedure, since physical dependence on phenothiazine does not develop, these tranquilizing agents do not control and may aggravate the convulsive manifestations of barbiturate withdrawal. They are not satisfactory substitutes for the slow-withdrawal technic, although they may be used with success during the final and recovery phases of withdrawal when the patient is sustained on small doses.

Publicity concerning the abuse of barbiturates obtained illicitly has led physicians to reassess older hypnotics such as chloral hydrate and paraldehyde and has led manufacturers to market a large number of "minor" tranquilizers in efforts to minimize abuse resulting from therapy. Unfortunately, with few exceptions these substances -- old and new, weak and strong -- are sufficiently similar to barbiturates or alcohol in a pharmacologic sense to possess similar abuse potential. They will support dependence when substituted for barbiturates or alcohol in persons dependent on these substances and will produce primary physical dependence if large amounts are given over an extended period. This physical dependence is manifested by the characteristic abstinence syndrome on withdrawal. Clinical reports of physical dependence on some of the more widely used drugs are available, among them meprobamate (EQUANIL, MILTOWN), glutethimide (DORIDEN), chlordiazepoxide (LIBRIUM) and methyprylon (NOLUDAR). In the case of the other "substitutes", the general statement regarding physical dependence is supported only by animal experiments.

The well-informed physician will employ the same safeguards in prescribing this class of drugs as he does in prescribing the barbiturates, even though the abuse potential may be significantly lower in a quantitative sense. He will recognize that compulsive abuse of these less potent substances, when it does occur, may be as serious as barbiturate abuse.

Alcoholics who are unable to hold a job often substitute barbiturates for liquor during the day and attempt to counterbalance excessive depression with the amphetamines. Successful disguise of the true state is rare. These persons are poor employment risks and represent a potential hazard, especially in the dangerous trades. The use of amphetamines in an attempt to counterbalance the hypnotic effects of barbiturates not only fails to solve the problem but permits the user to ingest larger quantities of the depressant drug, thus creating greater physical dependence.

Successful control measures have greatly reduced the supply of heroin and other opiates in the illicit market. Criminal addicts rely more and more on the readily available and less expensive barbiturates, amphetamines and similar drugs to satisfy their needs. Mixed addictions of this type are becoming increasingly common.

Judging from the results of the few psychologic, physical and postmortum examinations of persons who have been withdrawn after prolonged dependence on the short-acting barbiturates, there is little evidence of permanent neuropathologic damage. In sharp contrast, extensive neuropathologic changes have been observed in dogs after prolonged poisoning with barbital.

Dependence on Amphetamines and Related Substances

The capacity of the amphetamines and drugs having similar pharmacologic properties to elevate mood and induce a state of well-being is probably the basis for their value and widespread use as stimulants and anorectics. This therapy commonly involves continuous and prolonged administration, and varying degrees of psychic dependence may develop. Susceptible persons may increase the quantity and the frequency of administration in the hope of attaining a continuing state of elation. The psychotoxic effects of extremely large quantities may lead to aggressive and dangerous antisocial behavior. Reports indicate that amphetamine (BENZEDRINE), dextroamphetamine (DEXEDRINE), methamphetamine, phenmetrazine (PRELUDIN) and diethylpropion (TENUATE, TEPANIL) have been abused.

Abuse of this class of substances arises from and is perpetuated solely by the psychic drives to attain maximum euphoria. Physical dependence does not develop. Qualitatively, these psychologic effects are similar to those produced by cocaine. However, cocaine is a much more dangerous agent, and quantitative comparison would not be valid. In contrast to the amphetamines, cocaine is capable of inducing severe cytotoxic effects in nearly all tissues, including the brain.

A unique feature of the amphetamines is their capacity to produce tolerance. This property is possessed by only a few central nervous system stimulants. Although tolerance develops slowly, progressive increments in dosage permit ingestion of amounts hundreds of times greater than the original therapeutic dose. The daily ingestion of 1700 mg. of amphetamine has been reported. Progressive increase in dosage over many weeks permits the monkey to tolerate 10 to 20 times the average lethal convulsant dose. It would appear that all the components of the cerebral system do not become tolerant at the same rate. Thus, a user will experience increased nervousness and insomnia as the dose is increased. Ingestion of very large quantities may induce profound behavioral changes, often of a psychotoxic nature, including hallucinations and delusions. The latter effects are much more likely to occur following intravenous injection. Indeed, addicts take amphetamine by this route for the purpose of obtaining bizarre mental effects often associated with sexual fantasies, even orgasm. This type of abuse has increased since World War II, both in this country and elsewhere. In Japan a serious criminologic problem was created when many thousands of juveniles took dextroamphetamine intravenously for "kicks". It was estimated that as many as 500,000 juveniles were involved. In 1954 a total of 55,664 such violations were recorded. Although this abuse of amphetamine has been largely suppressed, it has been followed by abuse of other similar agents (currently, ephedrine).

Although amphetamines do not induce physical dependence as measured by the criterion of a characteristic and reproducible abstinence syndrome, it would be inaccurate to say that withdrawal of large doses is symptomless.

The sudden removal of a stimulant drug which has masked chronic fatigue and the need for sleep permits these to appear in an exaggerated fashion. The withdrawal period is characteristically a time of depression, both psychic and physical, and this depression probably reinforces the drive to continue the drug. However, the withdrawal of amphetamine is not comparable to the withdrawal of morphine, barbiturates, alcohol and other substances which create physical dependence. It is never life-threatening and requires psychologic rather than supportive therapy.

Abuse of amphetamines by self-administration has increased steadily since World War II, when they were commonly used to counteract fatigue, especially among aviators. Introduction of Benzedrine inhalers popularized the use of amphetamines as "pep pills" by persons who had to remain alert for long periods (students, truck drivers, etc.). Amphetamines were also used to enhance the physical performance of athletes and race horses. Abuse has been fostered in some large urban centers by irresponsible and immoral physicians who operate "antiobesity" clinics whose main function is to dispense amphetamines legally on a mass basis, often without examination or follow-up observations. Fortunately, most of these activities have been suppressed by warnings from local medical societies or by revocation of licenses.

There has also been an appreciable increase in the use of these drugs as stimulants by persons who abuse alcohol and barbiturates. Many times they become part of the picture of mixed addiction. The prognosis is poor, the relapse rate is high, and continued dependence on these or other drugs is the rule, especially among prepsychotic persons or those with latent schizophrenia.

AN OUTLINE FOR THE STUDY OF AMPHETAMINE ABUSE

David E. Smith, M.D., M.S.
Haight-Ashbury Medical Clinic
558 Clayton Street
San Francisco, California

I. Pharmacology of Amphetamine like compounds

   A. General central nervous system stimulant.

      1. Facilititates both motor and sensory functioning of the CNS.
      2. Drug taken orally for appetite suppression.
      3. Taken both orally and intravenously for non-medical purposes, but abuse liability much higher when taken I.V.
      4. Rapid tolerance develops, but no true physical dependence.
      5. A typical abstinence syndrome consisting of exhaustion followed by depression and anxiety. Prolonged psychotic reactions with paranoid characteristics may develop.

II. Clinical amphetamine syndrome and patterns of use

   A. Initial sensation of extreme mental and physical prowess becomes marred by recurrent affective lability with confusing and frightening perceptive and ideational experiences.

      1. Hyperacousia, illusions and hallucinations begin to appear with marked paranoid characteristics.
      2. The increasingly intense psychotoxic syndrome does not affect the subjective desire of the stimulant user to function more efficiently in various social situations, but does not diminish their objective ability to do so.

   B. Special characteristics of intravenous amphetamine use.

      1. After initial phases of experimentation, a special pattern of intravenous amphetamine use emerges.
      2. The drug is injected every 4-6 hours while the individual remains awake.
      3. The I.V. amphetamine user gets a sudden euphoric "flash" or "rush" characterized as a full body orgasm.
      4. The "run" usually lasts for several days. The individual falls into an exhausted sleep, awakes depressed and starts "shooting" again.
      5. The dosage may get extremely high with the greatest level reported being 15 grams in one day.
      6. Repeated use of the amphetamines at progressively higher doses causes and often terminates in an acute panic reaction or extreme toxic psychosis with hallucinations.

C. Oral amphetamine experience

1. No "rush" or "flash".
2. General euphoric sensation initially, although progressively increased dose may produce acute anxiety reaction.
3. High dose oral amphetamine users are often hidden, such as people in show business or housewives on "diet pills".
4. Oral amphetamine users usually present to doctors as extreme depression or acutely anxious.

III. Group amphetamine toxicity, sexuality and crimes of violence

A. I.V. amphetamine users often take it in groups, but group interaction facilitates hostility and paranoia.

1. Animal studies have demonstrated that animals placed in groups after receiving amphetamine demonstrate a greater toxic response to the drug.
2. Individuals under the influence of amphetamines have greater emotional lability and are prone to violence.
3. Sexual interest is facilitated, but ability to perform sexually is reduced.

B. Other adverse effects

1. Malnutrition with extreme weight loss.
2. Infected injection sites with occasional septicemia.
3. Serum hepatitis from contaminated needles.

IV. Treatment

A. Acute intoxication

1. Acute anxiety reactions are treated with long acting sedatives (i.e. librium) and supportive environment.
2. Toxic psychosis with hallucinations requires additional use of antipsychotic medication such as thorazine.

B. Withdrawal

1. Supportive care required for exhaustion syndrome and subsequent depression.

C. Cornoic after-effects

1. Long term psychotherapy often required to treat depression, psychotic after-effects, etc.

MY LSD "TRIP" NEARLY CRASHED

Lambert Dolphin, Jr.
Stanford Research Institute
Palo Alto, California

Four years ago I became a Christian after 30 years of skepticism and agnosticism. Abandoning church and Sunday school at the age of seven, I later made science and human wisdom my gods and the source of my enlightenment.

Six years of college made me aware, however, of an inner emptiness, sense of inferiority and inadequacy, a feeling of guilt and a vague awareness that I was not reaching my full potential as a man. A career in physics and space science proved challenging and financially rewarding but always with a note of disappointment. There must be more to life than this, I thought.

Believing moral standards were relative, I lived experimentally the philosophy, "Eat, drink, and be merry, for tomorrow we die." I wrestled with guilt, becoming more frustrated and discouraged, aware of decreasing happiness and isolation from others.

Following the advice of a Jewish friend, for two and a half years I invested in psychoanalysis as a means of finding myself, only to discover I was a prisoner of the past unable to change my basic nature and behavior patterns.

Sensing deep inner mysteries in the unconscious mind, I became interested in the religions of the world and began to explore and to seek religious experience and spiritual awakening. I came to think that religious truths were relative and quite unable to bring peace of mind.

With little motivation to live in a meaningless world governed by the laws of chance, I accepted an invitation one day to church. It was there that I discovered the Bible for the first time and became acquainted with the deep, rich insights given by this remarkable document. In a pastor's office not long afterwards, I made the exciting discovery of meeting Jesus Christ, the God of the Bible, in personal experience.

The pastor had explained God's love and plan for salvation, and when he invited me to receive Jesus Christ by faith into my heart I realized that God surely must have been the missing element in my life. With a flood of light and healing love, I was spiritually born and began a whole new life in Christ.

But gradually during the next few months, I foolishly began to wonder about other religions and how they fit in with the Bible. I was also intrigued at reports of religious experiences resulting from controversial new drugs such as LSD, mescaline, and psilocybin. Troubled by persisting emotional and psychological conflicts I decided to try the LSD experience with an experimental research group of doctors and psychologists.

After several preparatory sessions with carbogen gas (which produces momentarily an anesthetic effect), I was ready for my session with a massive dose of LSD and mescaline. A male psychologist and female medical doctor were present in the comfortable living room setting of the research clinic for my all-day trip to LSD-land.

Shortly after taking the drugs, I began to experience heightened audio and visual perception. Background music became ecstatically alive and full of living richness. The musical instruments became spatially deep and vividly alive inside of me. Vivid color patterns and fantasies in three dimensions filled my mind when I closed my eyes, and with open eyes I perceived the objects in the room with amazing depth, clarity, and a shimmering, crystalline glow. Gradually I lost awareness of my body and seemed to be pulled ever deeper downward into the past and into myself. Strange emotional experiences and long-forgotten dreams bubbled up inside.

I had the feeling that I was outside myself, looking into thousands of corridors of my life as if I were a whole universe in miniature. At times I seemed to be a vast cathedral. I was aware of history and the past as neither gone nor inaccessible. Time became strangely distorted and I even experienced the terrible sensation of time stoppage and endless eternity.

Unpleasant and terrible fears associated with conception, birth, and early childhood gripped my mind and for painfully long periods of time I was caught up in closed cycles of temporary insanity and terrible vast worlds of unreality. The environment around me became strangely alive and hauntingly familiar.

Strange forces and powers seemed to seethe about me, calling and pulling at my soul. And I was aware of the remoteness of God who seemed far off and inaccessible. It did not occur to me to pray. Instead I wondered who I was and how I would ever find myself.

The immediate effects of the drug wore off that night although I was aware of the movement and glow of paintings and the animation of photographs which came alive before my eyes until after dark.

The four weeks which followed my LSD session gradually became a living hell. I was aware of a strange, immense spirit world all around me. There were visions of the universe so overwhelming and overpowering I was sure I could never come back to life on earth. I was obsessed with haunting, seductive voices suggesting suicide or strange behavior.

While I was aware of people and events, I began to slip out of touch and lose the desire to relate and communicate with my fellow human beings in the everyday world. An overwhelming flood of unconscious material poured through my mind. I was lost in space, unable to sleep for nights on end.

Gradually I became aware that something was very wrong, and gripped by overwhelming fear I called my pastor. In his office he drew two circles. One he labelled "the material world", the other "the spiritual world". He showed me that I seemed to be spiritually lost, wandering in a great void between heaven and earth.

As we prayed together, I gained an immediate sense of the presence of God and a restored relationship of love with Jesus Christ. Haunted by terrible visions, I left several days later for two weeks' rest, spent in sleeping, Bible study and long prayer.

Gradually stability was restored and I began to relate in real time to real people and to react normally to life on earth. I became aware for the first time of my serious error in taking drugs, my disobedience to God, and the subtlety of temptation.

Yet six months elapsed before I was fully myself again. Those six months brought the strong and painful discipline of my heavenly Father and inner spiritual surgery which at times was nearly unbearable.

I had a terrible vision of hell and heard the screams of torment of the lost. I saw that the indirect effects of the drug had brought great inner damage which only time and God's Spirit could heal. I was so thankful for the steadfast love of God and the miracle of his healing hand.

Today, fully recovered from the effects of this fantastic experience with drugs and the spirit world, I have been greatly concerned for the growing number who take such drugs. The serious dangers and problems which mind-distorting chemicals present to individuals and to society should be made fully known to everyone.

THE PSYCHOTOMIMETIC DRUGS

An Overview

Jonathan O. Cole, MD, and Martin M. Katz, Ph.D.
Bethesda, Maryland

For many years several pharmacologically similar drugs -- lysergic acid diethylamide (LSD-25), psilocybin, and mescaline, among others -- have been of special scientific interest. In volunteer subjects, they have been known to produce a variety of intense and unusual psychic effects. These include bizarre visual phenomena, ranging from a heightening of the apparent brightness or beauty of colored objects in the environment, through distortions in the perceived nature or meaning of real objects (illusions) to true visual hallucinations of colors, shapes, or even of complex scenes or events. These visual phenomena are usually accompanied by intense and often rapidly shifting emotional experiences (ranging from mild apprehension to panic, severe depression or mystical elation) or by concurrent emotions (such as depression and joy) which are not experienced simultaneously under ordinary conditions. Subjects describe changes in body image, the body or its parts appearing larger or smaller, intense feelings of depersonalization, including states in which the subject believes he is outside his own body viewing it from afar, or even sensations of death and rebirth.

Occasionally there may be loss of insight into the drug-induced nature of these sensations, with paranoid delusions about other people in the environment who are believed to be trying to harm or kill the subject. Intense self-loathing with suicidal impulses or great feelings of mystical revelation can also occur. Distortions in experiencing passage of time and, more rarely, disorientation as to time and place can occur. The exact quality, nature, and content of these experiences appear to depend in a complex manner on the personality and expectations of the subject, the dose of the drug, and the setting in which the drug is administered.

Particularly since the synthesis of LSD-25 in 1943, there has been intense scientific interest in the possibility that these agents reproduce naturally occurring schizophrenic states. After 20 years of research, it seems most reasonable to state that these drugs can produce a state which is similar but not identical to naturally occurring schizophrenia, and which may also resemble the toxic deliria caused by other agents such as atropine or scopolamine. Since subjects acquire tolerance to LSD, psilocybin, and mescaline after repeated administration, the possibility that such compounds are of etiological significance in naturally occurring schizophrenia seems remote.

Because of the assumed similarities of the state produced by these agents to schizophrenia, they have been termed "psychotomimetics" or mimickers of psychosis. Even less accurately, because of the visual effects, they have been termed, "hallucinogenics". These names reflect a careful scientific concern with potentially dangerous, though unique drugs. More recently Osmund has coined a term, "psychedelic", meaning "mind manifesting", which has begun to be used widely. Its implications are certainly more vague than those of the other terms. In the contexts in which it is used, it seems to imply that these drugs bring to the fore aspects of the subject's mind previously hidden or at least less manifest, and suggests that these effects may be "good". Assuredly, many investigators believe that the effects of these drugs result in an intensity of personal experience and emotion more meaningful than the terms "psychotomimetic" or "hallucinogenic" imply.

Therein lies the present problem in the use or abuse of these agents. Rather than being the subject of careful scientific inquiry, these agents have become invested with an aura of magic, offering creativity to the uninspired, "kicks" to the jaded, emotional warmth to the cold and inhibited, and total personality reconstruction to the alcoholic or the psychotherapy-resistant chronic neurotic. On the West Coast, the effects are judged by some to be related to the insights of Zen-Buddhism; on the East Coast, they are judged by others to lead the way to a new and free social order. Like the broom in "The Sorcerer's Apprentice", the drugs seem to have walked out of the laboratory into the outside world on their own feet and to have turned on the unsuspecting apprentice.

To be sure, the therapeutic uses of these agents have been pioneered by psychiatrists in many instances, including Abramson, Frederking, Osmond, Savage, and Sandison. With much of the published work, however, there is an implicit or explicit attitude that the self-knowledge of the leverage for self-change allegedly effected by these drugs may be of value or benefit to individuals who do not ordinarily consider themselves psychiatrically ill. At the extreme of this attitude-dimension is the International Foundation for Inner Freedom, formed by two psychologists, Drs. Leary and Alpert, who claim that these agents should not be considered drugs at all but should be classed with poetry, music, literature, and art, and should be available to all men wishing to improve their minds and "expand their consciousness". There is, apparently, an active black market in these drugs in major urban centers, where these drugs may have more snob appeal than diacetyl morphine (heroin), marihuana, or dextroamphetamine.

Major attention has been focused on these drugs, their effects, and the personal eccentricities and misadventures of the more notorious people advocating their use by a series of articles in national popular magazines -- *Look*, *The Reporter*, *Cosmopolitan*, *Time*, the *Saturday Evening Post*, and the *Ladies' Home Journal*. As with other forms of illicit-drug abuse, it is hard to tell the real extent or seriousness of the psychotomimetic problem, despite this rather florid publicity.

The present article has two purposes: first, to underline the real and important dangers inherent in the self-administration of these agents or in their administration by uncritical enthusiasts and inadequately trained individuals; second, to stress that some of the therapeutic claims made for these drugs are of sufficient potential importance to warrant serious, unprejudiced study.

Psychotomimetic Agents as Therapy

We take the second issue first, since the first issue has already been outlined above. There have been an increasing series of studies reporting LSD-25 and/or mescaline to be effective in the treatment of chronic alcoholism, with remission rates of approximately 50% being usually described.

Similar results have been observed in the treatment of chronic neuroses. The claims for the utility of these drugs in the treatment of chronic neuroses range from dramatic improvement to modest descriptions of improved communication with the therapist, emotional release, and ability to talk about difficult personal topics. There have also been informal claims that these drugs are useful in producing valuable personality changes in juvenile delinquents and other individuals with serious personality disorders.

In brief, it is claimed that these agents are of striking value in some groups of patients who are highly resistant to more conventional forms of psychotherapy or pharmacotherapy. Many of these claims stress, further, the occurrence of basic changes in attitudes or personality, not mere symptom reduction. If these claims are confirmed, this new therapeutic approach could add substantially to the psychiatrist's tools. We must stress that none of these claims are based on detailed, carefully controlled studies designed to be free from possible distortions due to bias or enthusiasm. Further, the terms in which the effects are often explained are not formulations common either to medicine in general or to psychiatry in particular. -- "Our own conception is that people live an inauthentic existential modality, (i.e., alienation), and that illness arises from an inability to see meaning in life. LSD provides an encounter which brings a sudden liberation from ignorance and illusion, enlarges the spiritual horizon and gives a new meaning to life."[1] -- Such explanations may have a mystical or philosophical sound which appeals to the enthusiast, but they are likely to produce doubt or even violent disbelief and concern in physicians used to a more pragmatic approach and in scientists used to a more communicative language. The present authors occupy a skeptical middle position, favoring the Scotch verdict of "not proven". We feel strongly that this approach to therapy should neither be rejected out of hand as "crazy", nor accepted and applied in an uncritical manner, but should be subjected to careful study under closely controlled conditions.

It is important also to note that the "treatment" discussed above is not a drug therapy in the conventional sense. It is, rather, a complex mixture of drug therapy and brief psychotherapy, with one or more prolonged sessions, lasting eight to ten hours, during which the patient experiences

---

1. Savage, C.; Terrill, J., and Jackson, D.D.: LSD, Transcendence, and New Beginning, J. Nerv Ment Dis 135:425-439 (Nov.) 1962.

the drug effect and discusses his experiences and the light they throw on his problems, needs, and past experiences in a prolonged and intensive manner. The drug session is usually preceded by several interviews in which the patient's problems and the changes he desires from treatment are explored, a relationship with the therapist is established, and strong positive expectations concerning the drug session are developed. The treatment, as administered by many, seems to include strong suggestion, aspects of dynamic insight-oriented psychotherapy, mystico-religious exhortation, catharsis, and pressure on the patient to confront his problems head on. It is possible that with all these components the intense and bizarre drug experience may indeed permit an impact on the subject not obtainable by any other means. It is difficult to break down the therapeutic process into its component parts. The proportions of the components may vary from therapist to therapist or from patient to patient, especially with regard to the amount of therapist interpretation and the extent of his active participation in the solution of the patient's problems.

When this treatment is given in a hospital setting, there is also considerable personal interaction between the individual patient and other patients who have already undergone this experience or are about to undergo it. The whole milieu has an aura of intense conviction that change will occur and that the experience will be highly meaningful and highly therapeutic. Intensive group therapy sessions may occur before and after the actual LSD experience. The entire therapeutic process, including preparation for the psychotomimetic experience and subsequent reinterpretation of it, may resemble the group interaction common to successful experience with Alcoholics Anonymous. It may resemble also the intense personal interaction used at the National Training Laboratory at Bethel, Me., where revelations and emotional experiences are created by intensive interpersonal and group interaction alone, without the aid of any drug.

Problems in Evaluation

This form of treatment is, therefore, highly intense and highly complex, necessitating strong convictions and great sensitivity on the part of the therapist, and requiring the creation of a social milieu in which all patients not only share in a strong conviction that change will occur but also hold a personal commitment to make certain that change does occur. Dramatic short-term effects under such conditions have been described. The durability on prolonged follow-up study of acute changes in behavior, induced by therapy or perhaps even changes in personality, is yet to be determined.

Several problems face investigators who wish to make careful studies of such a complex treatment. It seems likely that people who administer the treatment effectively must be convinced of its efficacy. Further, they must be highly biased in favor of it for the treatment to have the described effect. The physician may be so involved in the treatment that he can not evaluate its effects objectively. Independent evaluation of outcome is, therefore, essential to any good research design in this area. This independent procedure should make it easier to evaluate the efficacy of treatment in a condition like chronic alcoholism where the objective index of success or failure, namely, excessive drinking, exists.

A much more complex problem must be faced in evaluating the effects of these drugs on individuals with personality disorders, severe or mild. Here a value judgment must be made concerning the goodness or badness of the changes which occur, if any. For example, how should one evaluate outcome if an individual were to divorce his wife and take a job which paid him less but which he said he enjoyed more than his previous job? If a person becomes more relaxed and happy-go-lucky, more sensitive to poetry or music, but less concerned with success or competition, is this good? There are suggestions that individuals who take drugs like LSD either illicitly or as therapy may become more detached from reality or less concerned with the real world, more "transcendental". A few of the reports concerning this treatment, both published and unpublished, mix a variety of poetic metaphors and occasionally bizarre-sounding elaborations with serious descriptions of the details of treatment and the valuable changes to be expected. For example, certain kinds of artistic experience, certain types of music, etc., are said to be particularly valuable in inducing the desired effects. Specific components of the therapeutic process described may often have a bizarre -- almost schizophrenic -- component, which tends to make serious investigators discount this whole area as a delusional belief shared by a group of unstable clinicians and lay enthusiasts. Whether or not this criticism is justified can be judged only by future studies designed to be immune to such criticism. Future studies must decide whether these treatments do indeed have promise for specific clinical conditions which are now highly resistant to conventional psychiatric approaches.

The Current Situation

At present a small number of facts are strikingly clear. None of these drugs has been proved to be effective or safe therapies for any psychiatric condition. Because of the apparent potential of these agents for producing bizarre behavior, suicidal impulses, or undesirable personality change in some subjects or patients receiving them, there is some question as to whether they should be administered outside a hospital. They are not available for general prescription use, and there is some question whether they should ever be so available. Because neither their safety nor their efficacy has been adequately demonstrated, two of these agents, LSD-25 and psilocybin, are being controlled as investigational drugs in conformity with the existing Food and Drug Administration regulations under the sponsorship of the drug company which holds the patent rights for both substances. It is our understanding that this company is at present providing these agents for scientific study only to investigators functioning within federal or state agencies with formal approval of the agency, or to investigators doing research under grants from these agencies.

This policy decision has been made presumably to insure that these drugs will not be misused by unqualified or unscientific investigators without adequate checks and balances necessary for safe and careful research. The other agent, mescaline, is not to our knowledge being sponsored currently by any pharmaceutical company, although it can be obtained for animal or biochemical research from certain biochemical supply houses.

Legally none of these agents can be used, even on an investigational basis, except by investigators who have filed a formal research plan with the FDA through a sponsoring pharmaceutical company, or by investigators who have themselves assumed sponsorship and satisfied the FDA concerning the safety of these agents and their proposed research use in man. Any reported use of these agents outside of these approved channels should be reported to the FDA. Since there have been a number of reports of suicide attempts or prolonged psychotic reactions requiring psychiatric hospitalization in persons obtaining these drugs outside of approved medical channels, their indiscriminate unsupervised use is clearly dangerous. In addition, there have been reports of insidious personality changes occurring in individuals who have indulged in repeated self-administration of these agents. It is, of course, difficult to determine whether or not some of the bizarre behaviors of such individuals are a product of the drug itself or are a product of the underlying personality aberrations which lead the individuals to seek out these agents. In any case, there is no evidence that uncontrolled self-administration of these drugs is either safe or desirable. There has also been concern over the possibility that investigators who have embarked on serious scientific work in this area may have been subject to the deleterious and seductive effects of these agents.

These statements are made in hope that warranted concern over the illicit abuse of these agents will not prevent systematic study of their possible potenital in the treatment of psychiatric conditions which are otherwise severely treatment-resistant.

PROLONGED ADVERSE REACTIONS TO LYSERGIC ACID DIETHYLAMIDE[1]

Sidney Cohen, M.D.
Kieth S. Ditman, M.D.
Veterans Administration Hospital, and
University of California Medical Center
Los Angeles, California

Recently the authors briefly reported complications and misuses associated with hallucinogenic drugs, such as D-lysergic acid diethylamide (LSD). Recently, an increasing number of adverse reactions to these drugs have occurred, and a discussion of the nature of the complications appears indicated. It is not our intention to minimize the potential value of these agents. Rather, we wish to emphasize the importance of continued research with this group of compounds, so that their advantages and limitations are eventually understood. We have already reported on certain aspects of their therapeutic purposes. However, the question of their therapeutic value remains unsettled since no definitive study has been reported. It is our impression that they are unique tools in the study of altered states of awareness, perception, and ideation.

The nomenclature of these compounds poses problems. "Hallucinogen" is a poor name for this group since true hallucinations occur infrequently. "Illusinogen" would be more appropriate, for almost invariably distortions of perception elaborated from sensory cues are noted. The term "psychotomimetic" has been popular, but only delineates a segment of the reaction forms, for many subjects do not experience a psychotic-like state at all. Osmond's term "psychedelic", meaning mind manifesting, has the advantage of being nonjudgmental, but may be too general, since psychic stimulants and sedatives could logically be included under the phrase "mind manifesting". Other names for this group of drugs have been: phantastica, deliriants, psychotogens, and psychodysleptics.

An impressive list of botanicals and synthetic chemicals with hallucinogenic properties has been found as a result of assiduous searches by modern psychopharmacologists and primitive man. Chemically, they may be subclassified according to the inclusion or the absence of an indole ring in their structure.

A. The principal indole hallucinogens are:

1. D-Lysergic acid diethylamide (LSD) and its many congeners. LSD is a semisynthetic diethylamide from lysergic acid, a naturally occurring constituent of the fungus, ergot. A recent development is Hofmann's isolation of D-lysergic acid monoethylamide and D-isolysergic acid from

---

[1] Archives of General Psychiatry, Vol. 8, May, 1963, pp. 71-76.

ololiuqui. For the first time a lysergic acid derivative with hallucinogenic activity has been found in nature.

2. Psilocybine (4-hydroxy-N-dimethyltryptamine orthophosphate) and psilocin (4-hydroxydimethyltryptamine). These were isolated by Hofmann from the Mexican mushrooms of the Psilocybe mexicana group.

3. Bufotenine (5-hydroxy-N-dimethyltryptamine). This is an hallucinogen with marked autonomic properties which has been separated from both the skin of certain toads and from cohaba snuff.

B. The principal nonindolic psychotogens are:

1. Mescaline (3,4,5-trimethoxyphenethylamine) obtained from the peyote cactus. The buttons of the plant have been used for centuries by Mexican and Southwestern Indians as part of their religious rituals.

2. Hashish (marihuana, cannibis indica). This is also a drug with a long and intriguing history. Yogis found it useful as an aid in meditation. The Thug and Hashishin (assassin) sects employed it for more nefarious purposes. A series of cannabinols have been extracted from hashish and need further investigation.

From a review of the literature and a survey of investigators three years ago, one of us reported on a number of difficulties encountered with the use of LSD. Results of this study are enumerated below:

1. Complications were more apt to occur in patients undergoing psychotherapy with the drug than in experimental subjects.

2. The LSD experience was so dramatic that subsequent illness might be attributed to the drug exposure by either patient or physician.

3. Physical disturbances attributable to the drug were extremely rare and did not cluster about any single organ system.

4. Psychological complications, although infrequent, were the main problems arising from the use of LSD. They consisted of attempted or completed suicides and prolonged psychotic reactions.

5. No instance of physiologic addiction to LSD was encountered.

6. Precautions in selection of patients and subjects and their protection during and after the LSD state were proposed.

More recently, additional untoward effects to LSD have come to our attention; some of them have not been adequately described in previous communications.

I. Prolonged Psychotic Decompensation.

A single, or a series of, LSD treatments can produce a psychotic break presumably by releasing overwhelming conflictual material which cannot be handled by the patient's established defenses. It is possible that LSD disrupts psychic homeostatic mechanisms and permits reinforcement of latent delusional or paranoid ideas. Presumably, this occurs when the normal aversive and critical functions of the ego are impaired under LSD.

CASE 1. The patient, a 36-year-old, married legal secretary appeared requesting psychiatric treatment. At the time of the interview, two years after a single LSD experience, she was preoccupied with pseudo-philosophic abstractions about truth, beauty, love, and life. She was flamboyant, under considerable pressure of speech, and easily distractible. Her associations were loose, and her thinking processes were tangential. She stated that under her LSD revelation, "I saw the awful truth: what I am, and how to love people".

Following the experience she complained of an inability to control her thoughts. A belief that she was in the Garden of Eden, preoccupation with religious themes, and socially unacceptable behavior such as appearing nude in public became manifest. Ten days after her LSD treatment her husband placed her in a mental hospital and she was given a series of electroshock treatments. Despite partial improvement she has had long periods when she was unable to work because of emotional lability and uninhibited speech and behavior. Several subsequent hospitalizations have been necessary.

The diagnostic impression was one of an affective schizophrenia. Although a schizophrenic process may have antedated the LSD treatment, the patient functioned well and held responsible positions prior to her breakdown. She was recently given a course of thioridazine medication with definite improvement.

CASE 2. The patient was a 32-year-old secretary to a psychotherapist who had a large "LSD practice". She states that she had taken LSD 200-300 times within a three-year period in doses of 25 ug - 400 ug. In addition, other hallucinogens, sedatives, and stimulants had been tried singly and in various combinations. Most of these drug experiences were pleasant, but more recently they had become dysphoric. She stated that the LSD changed her from an inhibited, blocked person to a "freer" individual, but it had left her without control over her emotions.

When first seen she was in a panic-like state, loose in verbal associations, fearful of being alone, and expressing a strong desire for sedation. Frightening, spontaneous recurrences of the hallucinatory phenomena which had been seen under LSD were almost daily events. These consisted of skulls of familiar faces moving on the wall and feelings of accompanying horror.

Despite some initial improvement on chlordiazepoxide, she remained anxious, depressed, and over-dependent.

In this patient the extraordinary frequent ingestion of LSD and other psychochemicals resulted in a borderline panic state with spontaneous visual hallucinatory phenomena.

CASE 3. The patient was a 41-year-old white female office manager who was referred by her therapist. Since her last LSD treatment, two years ago, she had been panicky, agitated, depressed, and obsessed about going crazy or killing herself.

Her early life had been very chaotic. The only relationship between the father and mother was one of bickering, assaultiveness, and reprisal. From the time she was 11 and until she was 14 her alcoholic father had sexually played with her. When the patient was 17 the father killed her mother and himself. For a short period she was a prostitute. During this time she became pregnant and bore an illegitimate female child. She has had two brief marriages and is now divorced.

Two years ago she made an unsuccessful suicide attempt with sleeping pills. After this she received a course of electroshock therapy for depression. Two months later, she was given eight LSD therapy sessions. The eighth session was so frightening that she fled to another part of the country to avoid further treatment.

Since that time she has been confused, agitated, and preoccupied with guilt feelings about her life. Copious weeping and occasional screams interrupted the interview. She told her story quite dramatically. She claimed to be unable to be in crowds or alone, unable to sleep, eat or work. Hospitalization was recommended but refused. A short time later another suicide attempt with barbiturates was made. After recovery she was kept in the hospital for a three-month course of psychotherapy with partial improvement and was discharged to outpatient group therapy.

This patient represented a poor candidate for LSD therapy. She was a tenuously adjusted person who had never formed any meaningful relationships. During her LSD interviews unconscious material became available to her which she could neither accept nor repress. As a result her defenses appeared to disintegrate. An array of hysterical, obsessive-compulsive, and hypochondriacal, fragmented coping efforts were made. Extreme anxiety culminating in panic-like episodes was recurrent. Her emotional disturbance was so great that she was considered to be psychotic by some examiners. Others believed that she was an hysterical personality in an extreme anxiety and depressive reaction.

CASE 4. (This case was seen in consultation with Dr. Sherman Little, Children's Hospital, Los Angeles.) A 10-year-old male accidentally ingested a sugar cube containing 100ug of LSD which his father, a detective, had confiscated from a "pusher". The child had a severe reaction with colored visual distortions, hallucinations, and anxiety. These became less distressing during the next three days, but did not subside.

Chlorpromazine did not completely control the phenomena but did diminish "the pain of the checker-boards passing through my body".

When the boy returned to school a week later the pages wavered and interfered with his reading. While looking at the TV screen he would become upset because he saw movements without the set being on. A lump would form in his throat, and he clung to his father at these times. Some days might be completely uneventful; on others he re-experienced the visual illusions and became anxious.

One month after the incident he still saw light halos with closed eyes. Hospitalization at this time resulted in a gradual but complete improvement.

CASE 5. The patient was a white, married male who teaches hypnosis. He complained of episodic anxiety, a variety of pains, depression, and visual distortions for seven months since taking LSD about 25 times for psychotherapeutic purposes. At present he has feelings of impending doom, at times he "wants to climb the walls". The periodic illusions and emotional upsets come on when he is under stress. During these episodes he sees animals and faces moving on the wall.

He claims that prior to the LSD treatments he had no anxiety, but was unproductive and "zombie-like". At present he is writing five books and wonders, "Do I have to pay for this higher level of functioning with anxiety and pain?"

There is a flavor of grandiosity to his ideation. For example, he told his mother some of her thoughts before he was born. He speaks of his mental activity as though it has a special potency as when he says, "I have to watch my thoughts, I might think myself dead."

The impression is that of an anxiety and depressive reaction with dissociative features reminiscent of the LSD experience. In our opinion his LSD therapy did not succeed in working through his conflicts, or re-repressing the traumatic material recalled under the drug sessions.

II. Depressive Reactions.

When the LSD experience mobilizes considerable feelings of guilt or shame, an extended depression can result. In rigid or overconscientious individuals who undergo the ego dissolution that the hallucinogens can induce, a depression may follow the use of the drug.

CASE 6. The subject was a psychoanalyst who took 100 ug of LSD in order to experience LSD state. Although the visual effects were intriguing, he complained of considerable somatic discomfort during the period of drug activity.

For the next eight months, he presented a picture of an hypochondriacal agitated depression. He complained of weakness, back pain, and leg cramps. For a long time he was convinced that a coronary occlusion had occurred. This was never confirmed by laboratory tests. He was restless, anxious, and unhappy. He ruminated about the possibility that he had revealed damaging unconscious material during the LSD period. He made a slow but complete recovery.

III. Release of Pre-Existing Psychopathic or Asocial Trends with Acting Out, or Abandonment of Social Responsibilities. -- This is illustrated by the following cases.

CASE 7. The patient was a married, white female housewife who appeared seeking a diagnosis. It was difficult to say whether she was sober and garrulous, or mildly under the influence of some drug at the first interview.

Her early history included the fact that at 15 years of age she ran away from a reform school and appeared at a Vedanta Center 2,000 miles away, dirty, in rags, and hungry. She was taken in, and she spent a number of months there. Later, while studying in a New York City college as a "psych major" she lived in Greenwich Village, smoked marihuana, and enjoyed the marginal life of that colony. Seven years ago she "settled down" by becoming pregnant and marrying an older man, a "square". They had two children, and she says that she was a model mother.

She has had LSD at least six times. On the first occasion she suddenly realized that her mother wanted a boy when she was born. Subsequent occasions are described as "immensely valuable" and "the opening up of a new world" and "as something that one should have every Saturday night".

During the last three occasions the LSD was combined with carbon dioxide inhalations, methylphenidate, and JB-329, an experimental psychotomimetic drug with atropine-like effects. She then became involved in a group who used marihuana, meperidine, and opium, all obtained from Mexico. These drugs, she claimed, helped her write better. She asserts that she was not addicted to any of these, "there were no withdrawal symptoms." In order to obtain her own supplies she ran away to Mexico with her pusher and discovered a "beat" colony at Guadalajara where heroin, barbiturates, and marihuana are apparently items of commerce. This period of sexual and artistic looseness is described with considerable positive affect. She returned to her home eventually because of her children, bringing back a supply of "pot" and heroin. She cannot decide whether to stay with her children or abandon them for the amoral, irresponsible life of the "beat" world.

A role that LSD could have played in this woman's acting out behavior was to release her partially suppressed impulses and reduce any existing counterforces. Her LSD exposures had occurred essentially without therapeutic support or assistance, after which she fell back into an earlier mode of existence which is now too entrancing to relinquish.

The impression is one of antisocial reaction in an emotionally immature personality whose current behavior may have been triggered by haphazard LSD exposure.

The patient also illustrated "multihabituation," the misuse of a variety of sedatives, narcotics, stimulants, and hallucinogens taken in series by borderline individuals. Such individuals claim not to get "hooked" on any one agent. They are certainly habituated to the drugged state. This "offbeat" existence satisfies the need for forbidden or unique experiences and the need to get away from their sober selves.

CASE 8. The patient is a white male who received four LSD sessions (50ug-150ug) in a state hospital. During his third treatment the patient developed an overwhelming feeling that he was turning into a bad person, a monster. The threatening or unacceptable impulses that emerged aroused intense panic feelings, and intramuscular chlorpromazine was given to abort the episode.

His past history includes the information that he had been arrested over a hundred times for armed robbery. Two months after leaving the hospital he was arrested for grand theft. His defense was that LSD had changed his personality and he was not responsible for his actions. This was unacceptable to the court, and he was convicted and sentenced.

This instance is included, not to illustrate an adverse reaction to LSD, but to demonstrate how a sociopath can try to use the drug experience to excuse his subsequent behavior.

IV. Paranoid Reactions -- Confirmation of Latent Ideas of Grandiosity by the Transcendental Aspects of the LSD Experience.

People who use paranoid mechanisms of denial and projection are relatively poor candidates for LSD. Their rigid, sometimes tenuous, grasp on reality may be disrupted for long periods of time.

They may react with increased suspiciousness and incorporate the drug experience as part of a vast plot. More commonly the chemical ego dissolution results in intense feelings of unity, death and rebirth, salvation and redemption. After the drug effects have worn off, the megalomaniacal belief that the individual has been chosen to convert others to the new faith may be retained. Small LSD sects have been established on this basis. The leaders gain considerable gratification out of their position of omnipotence which includes granting their disciples the LSD experience. Recently one lawsuit brought attention to a pastor who told his congregation that LSD could bring them all closer to God. Without entering into the complex and provocative problem of the drug-induced religious experience at this time, it seems obvious that sweeping recommendations that everyone ought to take LSD is an unsophisticated utterance with dangerous potential.

CASE 9. A psychologist was given LSD on three occasions (75ug-125ug) and for weeks thereafter acted out grandiose plans. One was to take over Sandoz Laboratories in order to secure the world supply of the drug. He threatened his wife with a gun, then left her, wrote some songs and plays of minor merit, and went off to live in the desert. He recovered gradually after a number of months without specific treatment.

It is not difficult to identify the individuals who openly express their megalomaniacal notions. There are others who are sufficiently aware of the reality situation to keep the knowledge of their own omnipotence hidden. They can become quite successful in controlling people in the role of religious leaders or lay therapists.

Comment

The actual incidence of serious complications following LSD administration is not known. We believe, however, that they are infrequent. It is surprising that such a profound psychological experience leaves adverse residuals so rarely. This may lend support to the impression that psychological homeostatic mechanisms for handling acute stresses are more resilient than is commonly believed.

As the serious complications to LSD are reviewed, certain patterns seem to emerge.

1. The patients who have difficulty tend to be emotionally labile, often hysterical or paranoid personalities. Many are already in treatment, and others seek out LSD therapists hoping that some instantaneous, magical experience will cure them. They are hypersuggestible and, given a drug which reduces critical ego function, can become overwhelmed with a deluge of anxiety and guilt-laden "insights".

2. In the majority of the cases who developed complications the drug had been obtained from improper sources. A black market exists in this country, and tablets, ampules, and sugar cubes saturated with LSD have become available in the large cities and on some university campuses. Certain practitioners obtain supplies from Mexico and other foreign countries.

3. It is noteworthy that when a psychotic reaction follows LSD usage, the clinical picture is reminiscent of the drugged condition. Hallucinations tend to be visual with colors and movement of objects characteristic of the LSD state. It is as though the pattern of psychosis mimics the dissociation that precipitated it.

4. Although a number of the patients recognized that the LSD had caused their psychotic or neurotic break, nevertheless they believed that the treatment had been extraordinary and often sought additional drug exposures. Such faith reflects the unusual nature of the experience and the personality of the patients concerned.

5. Therapists who administer hallucinogens should clearly recognize their patients' motivations and the potential hazards of a profound consciousness-changing experience. In view of the psychological potency of these chemicals the therapist should scrutinize his own motives in administering them. Until the indications, techniques, and precautions are better understood, LSD therapy should be restricted to investigators in institutions and hospitals where the patient's protection is greater and appropriate countermeasures are available in case of adverse reactions.

6. It appears that antisocial groups have embraced LSD and mescaline in addition to marihuana, the amphetamines, the barbiturates, and the narcotics. Since the LSD state can be a shattering one psychologically, these individuals may sustain severe undesirable reactions. Easy access to the drug will result in its accidental or deliberate administration to people without their knowledge, and this can be a devastating event. We can only repeat that carefully screened, maximally supervised patients given the drug by responsible, experienced investigators will avoid many difficulties in the postdrug period. The imprudent, cursory use of LSD and allied drugs is unsafe, and the complications that sometimes result retard their proper scientific study. When undesirable reactions and sensational publicity become associated with a drug, competent investigators are inclined to avoid participating in the careful, thoughtful studies which are necessary to evaluate it properly.

Summary

Adverse effects can occasionally follow the administration of D-lysergic acid diethylamide (LSD). Complications such as prolonged psychotic reactions, severe depressive and anxiety states, or intensified sociopathic behavior are much more likely to occur after the unsupervised or inexpert use of this drug. When properly employed, LSD is a relatively safe and important research tool.

LYSERGIC ACID DIETHYLAMIDE (LSD-25) AND EGO FUNCTIONS[1]

Gerald D. Klee, M.D.
Associate Professor of Psychiatry,
The Psychiatric Institute,
University of Maryland School of Medicine
Baltimore, Maryland

In 1947, Stoll in Switzerland reported on the effects of D-lysergic acid diethylamide (LSD-25), an ergot derivative which can produce profound psychological effects in humans when it is given in minute doses. Since that time, a large volume of literature has grown up around this substance. LSD has been put to many uses. Its chemical interactions within the body have been studied with the as yet unrealized hope of finding a chemical basis for mental illness. It has been of considerable value in the basic study of the physiology of the central nervous system. It is hailed by some as a dramatically effective adjunct to treating mental illness and is employed in many uncontrolled studies for this purpose. Thus far its greatest value, in my opinion, has been as an experimental means of studying psychological functions. Study of the psychological changes associated with LSD administration has intrinsic interest as a new and dramatic way of exploring human personality. Such studies are also needed in view of the continued use of LSD as a therapeutic adjunct. A basic understanding of the drug's effects is a requirement for anyone employing it to modify psychological processes in a therapeutic direction.

In view of the dramatic effects of LSD it is not surprising that many sweeping statements have been made regarding the nature of the psychological effects it produces. Some authors, particularly the early ones, have claimed that there is little distinction between schizophrenia and the picture which LSD produces in normal subjects. This claim has required extensive modification. Yet there are some similarities to schizophrenia, and in predisposed persons a schizophrenic picture may appear during LSD intoxication (Klee and Weintraub, 1959). For the purposes of the present discussion we are most interested in the statement made by many authors to the effect that LSD "dissolves the ego", or "impairs ego functions". Although such statements are commonly encountered in the literature, in very few instances are they documented in anything but an anecdotal manner. A few workers have performed experimental studies on isolated functions, such as intellectual performance, but rarely with any attempt to incorporate their findings into any psychological theory. Abramson and his co-workers, in particular, have performed a large number of interesting studies of the effects of LSD on a variety of psychological functions. Savage has written a useful and illuminating paper which deals chiefly with the effects of LSD on ego feeling. In it

---

[1] _Archives of General Psychiatry_, Vol. 8, May, 1963, pp. 57-70.

Savage uses Federn's theories of the ego as a basis for his discussion of LSD effects. According to Savage, many of the phenomena associated with the LSD reaction are derived from the drug's effects on perception and ego feeling. While this topic will be touched upon with a slightly different emphasis in this paper, the reader is referred to Savage's paper for a more detailed discussion of this aspect of the subject.

Savage's paper is the only one thus far, to my knowledge, to deal specifically and in depth with the effects of LSD on ego functions. The purpose of the present paper is to discuss the effects of LSD on a broader range of ego functions, bringing in both clinical and experimental data as a basis for discussion. It is not intended as a general review of the subject, however. The work which forms a background for this paper consists of a variety of clinical and experimental studies conducted at the University of Maryland, Psychiatric Institute, by a multidisciplinary research group. In these studies several hundred normal volunteer subjects received LSD in doses ranging up to 16ug/kg. The studies included both pharmacological and psychological investigations. Only the latter will be referred to in this paper. "Normal" volunteers are defined as persons who functioned adequately in their work and had no known history of psychiatric disturbance. Most clinically disturbed individuals were screened out in pre-experimental interviews. Doses of LSD used in the psychological studies to be reported were in the range of approximately 1ug to 2ug/kg body weight, orally administered. At lower dosages effects appeared less consistently, and at higher doses subjects were less willing and less able to cooperate in testing, since basic psychological functions are affected proportionately with the dose administered (Klee, Bertino, Weintraub, Callaway, 1961).

In the course of our discussion we will attempt to relate our findings to psychoanalytic theory and, to a limited extent, to experimental findings from other disciplines.

The clinical aspects of the LSD reaction will be described only relatively briefly, since LSD reactions are described extensively elsewhere in the literature. Within one half-hour following LSD ingestion the subject begins to note a variety of changes. Physiologically there is evidence of increased autonomic activity, especially of the sympathetic system. Pupillary dilation, palmar sweating, nausea, tremor, etc., occur. A high level of anxiety is extremely common. This is often accompanied by euphoria or silliness with impulsive laughter, especially in the early part of the reaction. In the course of the reaction, which ordinarily lasts about six hours, the subject usually remains in a heightened affective state, although this is not always evident to the casual observer. Affective behavior is extremely varied and is related to the subject's over-all clinical response as well as to his momentary reactions to internal and external stimuli.

The other effects of LSD can be described largely in terms of the ego functions affected. Ego functions are considered to fall within three realms: perception, thought, and motility. LSD produces effects in all of these areas, and each will be considered in the course of this discussion.

Perception

Perceptual changes occur under all environmental conditions, but are usually most marked when the subject is lying down in a darkened room. Profound alterations in spatial orientation are usually described by LSD subjects. Most striking are the changes in visual and somesthetic perception. Distances seem alternately greater and less; objects appear to be moving, the walls seem to be closing in or pulsating. Hallucinations of colors, lights, patterns, and objects usually occur. Subjects often have difficulty in discriminating between hallucinated and real objects. In some cases, especially with large doses, subjects believe their hallucinations to be genuine objects and react to them accordingly.

The phenomenon of synesthesia occurs almost uniformly with a sufficient dose. Its most frequent and obvious form is exhibited when auditory stimuli produce changes in visual hallucinations. For example, the experimenter claps his hands and the subject sees flashes of color in time to the clapping.

Changes in somesthetic perception are striking and profound. Feelings of numbness and paresthesias of the entire body are usually experienced. Feelings of depersonalization and derealization may be marked. Subjects report: "My body is no longer my own." "I feel like I'm a bystander watching myself." "I feel as if I have no body." One psychiatrically unsophisticated subject reported: "I feel as though my body is melting away; I have no boundaries -- scoop me up off the floor and tie me in a sack to give me some limits" -- and later, "I feel like I'm blended with the universe." Subjects may also have difficulty in differentiating themselves from other persons or even from inanimate objects, as discussed by Searles.

These and a wide variety of other reports of distortions of body image are given by LSD subjects. Human figure drawings done by many of our subjects also give evidence of the profound disorganization of body image experienced under LSD. In one of our studies (Silverstein and Klee, 1958), 18 male volunteers were asked to draw human figures under drug and control conditions. Each time the subject drew three figures: a male, a female, and finally, himself. All drawings were rated by four judges working independently. To summarize the findings, figures in the drug state showed less attention to detail, a greater number and severity of distortions, and more disturbed line quality in their drawings than those produced under control conditions. Drug figures also tended to be larger than control figures. Although there are alternative explanations for these results, the experimenters believe that the changes in drawings in the drug state were chiefly related to alterations in body image. Human figure drawings by LSD subjects also reveal a great deal of psychodynamic material, such as the state of defensive functioning, and psychopathology, such as paranoid tendencies, confused psychosexual identification, etc. Our material was not systematically analyzed for this material, but such a study should be rewarding.

Despite the subjective experience of numbness, subjects retain the ability to discriminate all types of sensations, including tactile, postural, and kinesthetic sensations. Most physical performance tests are carried out with only slight impairment, but subjects complain of difficulty in making their bodies "obey orders". It seems to the subject as though it really is not his body at all. As he is writing, for example, it may seem to him that some strange, unfamiliar hand is performing the act, a symptom quite similar to what is seen in the agnosias.

Subjects may also report unusual sensitivity to visual, auditory, or somesthetic stimuli. Some have complained of being painfully aware of the most minute details of their environments, including things which they would ordinarily overlook. For example, one subject reported: "Whenever I look at anything, it seems to penetrate me -- right into me." During a test for synesthesia, when the experimenter was clapping his hands in the air, a subject reported, "Whenever you clap your hands, I feel it go through my body." A weak electric shock, applied to the forearm, may also seem to the subject as though it penetrates his entire body. Innumerable similar examples could be cited.

Time sense is also profoundly altered. Subjects report: "Time has no meaning," "Time is standing still," "Time passes very slowly," and subjects without a timepiece often estimate the time to be much later than it really is. They may, in fact, express the feeling that days, months, or eons have gone by since they began the experiment. The effects of LSD on time perception were studied by Boardman et al., who found no consistent effects of the drug on subject's ability to measure one-second intervals. Using a different technique with 24 subjects, our results (Aronson, Silverstein, and Klee, 1959) demonstrated a distinct effect of the drug on time perception. Subjects were asked to estimate four different time intervals, 15, 60, 120, and 240 seconds, by signaling after being given a starting signal. For each time period subjects tended to estimate the time interval to have elapsed sooner while under the influence of the drug. The results were highly significant statistically. These results are consistent with the subjective experience of an extended passage of time during the drug reaction.

The relationship of time perception to other ego functions has received minimal attention in the psychiatric literature. The loss of ability to estimate time accurately according to the clock is a most impressive subjective experience. Similar changes are known to occur in various other toxic states, as well as in dreaming and in mental illness. Further study is required to determine to what extent the change in time perception is a "primary" effect of changes in brain function (the "internal clock" running faster) and to what extent a secondary result of alterations in cognitive, perceptual, and affective processes. The contribution of intact time sense to the operation of other ego functions also requires study.

Among the perceptual phenomena which merit special note are the marked distortions of the way in which other persons are perceived. Their features are grotesque and constantly shifting, their behavior is absurd, and even their existence may seem questionable. These phenomena often add to the experience of one's being isolated and utterly alone in the world, if indeed one exists, and if there is a world. At such times nothing can be more reassuring to the subject than for a simple, relatively undistorted percept of another person to break through. For the moment both he and his surroundings are reinvested with meaning and with life.

Considering the variety of clinical reactions to LSD, it should come as no surprise that many of the perceptual distortions of other persons assume dynamic significance. An experimenter who seems malevolent may grow horns, or a subject who feels impotent may see his genitals shrivel up before his eyes. As noted earlier, a subject with very diffuse boundaries may be unable clearly to differentiate his thoughts and feelings from those of persons about him. These few examples may give some idea of the potential for studies with LSD in this area.

Now, how do such phenomena relate to ego functions? Following Freud, it has been recognized that the ego is a perceptual ego and most especially a "body ego". In "The Ego and the Id," Freud stated: "The ego is first and foremost a body ego, it is not merely a surface entity, but is itself the projection of a surface." It is not entirely clear whether Freud meant simply that the ego arises from perceptual experiences, or if he meant that it requires a continuous perceptual supply in order to be maintained as well. In any case, there is good evidence that a continuous flow of stimuli of the various modalities is required to maintain "normal mental functioning". Studies of artificial sensory deprivation by Bexton, Heron, and Scott and by Lilly, and subsequently many others, have demonstrated that subjects deprived of a normal supply of external stimuli, without the use of drugs, may develop through disorders, visual hallucinations, disturbances in mood and affect, and even delusions. These effects seem to parallel those produced by LSD.

What are the consequences to the organism of such perceptual changes as are produced by LSD? For one thing, the individual's subjective existence, his "self," is at stake. Lacking a reliable inflow (or integration) of stimuli, particularly from his body, the subject has lost much of the basis for his self-percept. As a result, feelings of depersonalization and unreality are quite common. Yet, internal processes continue actively. The subject continues to have an awareness of his own mental processes, which under LSD are likely to be largely in the form of vivid imagery. The stream of images passing before his attention may seem very real, even palpable, to the subject. Such images, distorted though they may be, represent, or have at some time represented, objects in the real, external world. How is the subject to discriminate at this time between these symbols and the real objects which they represent? Under normal (i.e., nondrug) conditions, this is made possible by the perception of the self. This reference point, maintained largely by a constant integration of sensory information, allows a sharp discrimination to be made between inner and outer processes. The human has knowledge of the outer, or "real", world only by his own symbolic representations derived from immediate sensory information or from memory traces related to past sensations. In various forms of thought and fantasy, the symbols may be ordered with respect to one another in spatial and temporal sequences resembling those relationships obtaining in the real world. The intact, normal, waking person experiences little difficulty in distinguishing between his own productions and those events in the "real" world. This ability is taken for granted. He can do so as long as his self-percept is unimpaired. When LSD, in sufficient dosage, is administered, however, perceptual distortions occur, the self-percept is impaired and the ability to distinguish between fantasy and reality suffers.

Now, let us turn to some other aspects of the perceptual changes with LSD. We have mentioned certain symptoms which seem to indicate a heightened sensitivity to stimuli. Synesthesias are a particularly interesting example of this. Oversensitiveness to visual, auditory, and somesthetic stimuli are others. In all cases the subject seems to be flooded with more stimuli than he can handle. In the case of synesthesias these stimuli can overflow into other sensory areas. Yet, the stimuli are no greater than the subject is accustomed to handling ordinarily. Obviously, some change has occurred in the subject's handling of stimuli.

At this point it should be of interest to consider these LSD effects in the light of a statement by Freud in "Beyond the Pleasure Principle".

> . . . For the living organism protection against stimuli is almost a more important task than reception of stimuli; the protective barrier is equipped with its own store of energy and must above all endeavor to protect the special forms of energy transformations going on within from the equalizing and therefore destructive influence of the enormous energies at work in the outer world. . . .

In the same section Freud goes on to describe traumatic neurosis as a condition in which these barriers have been broken through -- the organism, under such conditions, mobilizes all its resources to bring the stimulus under control.

The above quotation from Freud makes equally good sense whether taken psychologically or neurologically. It is not clear how Freud meant it. For the purposes of our discussion let us interpret his statement in a neurological sense. It would be reasonable to assume then that when Freud spoke of stimuli in this case he included more complex patterns of stimuli, rather than merely discrete stimuli, such as pin prick, for example. Perhaps it is also safely assumed that he meant the stimulus barriers exist in the brain, rather than at the periphery. Such barriers would presumably consist of processes limiting the spread of excitation between different functional areas of the brain.

The indications are that LSD, in some manner, breaks down these stimulus barriers of which Freud spoke. Nor is this merely a figure of speech. There is some reason to suspect that integrative mechanisms within the central nervous system (CNS) which handle inflowing stimuli are no longer able to limit the spread of excitation in the usual ways. We might speculate that LSD allows greater energy exchanges between certain systems than normally occurs, without necessarily raising the general level of excitation of all cortical and subcortical structures.

The occurrence of synesthesias is consistent with this hypothesis. As far as I am aware, however, adequate neurophysiological evidence is lacking. Indeed, neurophysiological studies are probably far from giving any definite answer in either direction to this problem. It is not relevant to the aims of this paper to review such studies in detail, nor am I competent to do so. A few relevant papers will be mentioned, but the reader is referred to the neurophysiological literature for detailed treatment of the subject. A review by Evarts reveals that neurophysiological studies involving psychotomimetic chemicals have provided considerable data which are often contradictory and are usually difficult to interpret. It is reported that LSD produces an activation or altering of cortical electrical responses (Rinaldi and Himwich, 1955). These authors concluded that LSD produces a stimulation of the mesodiencephalic activating system. Purpura has indicated some of the complexity of LSD effects in his work which suggests that the inhibitory action of LSD on dendritic activity is more related to excitation of inhibitory neurons than to a blockade of excitatory synaptic activity. Studies by Bradley and Elkes may also be mentioned. These authors, studying spinal and decerebrate animals, concluded that spinal and mesencephalic connections are necessary to demonstrate effects of LSD upon the electrocorticogram. This finding suggests that an intact, functioning, peripheral afferent system is necessary for LSD effects to occur in higher centers.

There is a seeming paradox in postulating that LSD subjects may suffer from something akin to sensory deprivation, yet in the next breath proposing that they may also suffer from a flooding of stimuli. The paradox may be resolved, at least in theory, by the following consideration. A physiological condition in which stimulus barriers are reduced may be expected to result in overloading at least some perceptual and associational areas of the brain. This would represent a flooding of stimuli in the areas affected. With sufficient flooding of an area, informational coding might break down so that the net effect would be loss of information -- an end result equivalent to stimulus deprivation.

Another way to look at the question is against the background of some neurophysiological studies of Purpura. Purpura demonstrated in cats that LSD, in doses comparable to those used in humans, facilitates axosomatic synaptic activity characteristic of specific afferent synaptic systems, and it inhibits axodendritic activity in nonspecific, interareal, and intercortical afferent systems. Thus, there is a facilitation of transmission of stimuli in the pathways from the retina to the optic cortex, for example, while there is decreased transmission of impulses between different parts of the cortex, as, for example, in the transcallosal pathway. This finding does not support the hypothesis mentioned above, that there may be an impairment of stimulus barriers within the brain. (Although it is probably not sufficient to rule it out either, since additional pathways could be involved.) It does appear to be consistent with the observed paradox of overstimulation and understimulation in the LSD subjects. Clearly, effects such as visual hallucinations seem related, at least in part, to overstimulation of the optical system. The impairment of transmission along association pathways within the cortex, however, would presumably prevent the subject from successfully integrating the stimuli which his brain receives. It would be analogous to an organism starving despite adequate food intake, because of a lack of digestive enzymes.

These speculations are admittedly crude and moreover are likely to be highly inaccurate. They are offered in the belief that it is not only tempting, but necessary, to attempt to relate psychological and neurophysiological phenomena in this field of research. Hopefully, more sophisticated explanations will be offered in the future, which can then be tested experimentally.

The consequences to the subject of the apparent loss of stimulus barriers is in some respects analogous to the situation in a traumatic neurosis. Only in this case it needs a much milder stimulus to produce traumatic effects. Thus, a slightly threatening situation, such as mild reprobation, scorn, or unfriendliness from another person, may loom large and ominous to the subject. Strong affective reactions may occur with what appears to be only the slightest provocation. The barriers are down not only to noxious stimuli, however. Subjects often obtain unusually strong pleasure from the simplest of things, such as a play of shadows on the wall, or an amusing incident. It is hardly necessary to mention that in such cases psychodynamic and other factors are involved as well.

Another neurophysiological finding may also help to account for some of these clinical phenomena. Monroe et al. studied human subjects with implanted electrodes in the limbic system. After LSD, they found increased activation in this system, which was not reflected in cortical leads. This is a highly significant finding in view of the fact that there is abundant evidence that the limbic system plays a central role in the neural mechanisms involved in emotion. This finding also helps explain the increased affective state which is associated with LSD, as well as the heightened emotional responses to minor stimuli, discussed above. Further reference will be made to this finding later in this paper.

Thought Processes

Thought processes in LSD reactions are, naturally, exceedingly complex and variable. Subjects experiencing paranoid reactions think differently from those with depressive reactions, and so on. We shall attempt to ignore these differences and concentrate on a few of the basic characteristics of thought which most LSD subjects have in common.

Thought takes on a quality which many subjects describe as dream-like. Concentration becomes difficult or impossible. Thoughts seem to follow a will of their own and are no longer at the subject's command. As the reaction progresses, thought may take on a visual, hallucinatory quality; when this happens the subject discovers his thoughts parading swiftly before him in visual form, as though on a three-dimensional screen. If left to himself, he may find himself swept irresistibly into a bizarre, autistic world of vivid imagery. When called upon to describe this experience he is at a loss for words.

Such thought processes have many of the earmarks of primary process thinking. We do not intend to dwell on them, however. Instead, we shall confine most of our attention to certain other aspects of thought, which are altered by LSD. These are the intellectual functions, especially problem-solving ability, learning, memory, abstract thinking, and association.

Jarvik et al. have shown that intellectual ability, including memory and problem solving, is impaired by LSD, proportionately with the dose. Such impairment is also readily observable clinically, in many tasks even as simple as serial seven subtractions. Many subjects who can normally perform this task easily cannot do so at all when under the influence of LSD.

Memory undergoes many alterations under LSD. There is sometimes a hypermnesis for remote events. In other cases this is not evident. On the day following the drug, and thereafter, there is sometimes amnesia for much of the drug experience. This generally occurs to an extent roughly proportional to the severity of the regression. In one case of ours, a subject's amnesia lifted when he took LSD a second time, then returned when the LSD wore off again.

In virtually all cases, with sufficient dosage there is memory impairment for immediate events. A subject given a simple sentence to repeat, repeats it in distorted form or asks over and over to have it repeated to him. Of course this may represent an impairment of learning as well as of memory. It would be difficult to separate the two processes under such conditions.

In order to test impairment of immediate memory more systematically, we employed the Wechsler Memory Scale, testing 16 subjects who received a moderate dose of LSD (72ug) (Silverstein and Klee, 1958). This test covers a number of aspects of memory for recent material, icnluding memory for geometrical figures, digits, word associations, and for paragraphs of verbal material. Definite impairment of many aspects of memory was demonstrated. There is no doubt that memory is more severely impaired with higher doses of LSD, but subjects are difficult or impossible to test on the larger doses.

In another study (Silverstein and Klee, 1960), with 24 subjects, tested on the memory span subtest of the Wechsler Memory Scale and given a dose of 2ug/kg LSD, it was demonstrated that memory span for digits was significantly impaired. In another pair of experiments (Aronson, Waterman, and Klee, 1962), we tested the effect of LSD on the learning of paired associates. (The subject is given a series of words in pairs. His task is to respond with the second word of the pair when presented with the first. The number of trials needed is used as a criterion of learning ability.) The results of these studies indicate that this type of material, once learned, under the effects of LSD, is retained as well as when learned in the nondrug state. Over-all learning of a list of 22 neutral word associates was accomplished in no more trials for LSD subjects than for the controls. In the second experiment in which 30 paired associates, some of them emotional words, were used, over-all learning was significantly slower for the LSD subjects than for the controls. There was no difference between experimental and control groups in the amount of difficulty manifested in learning emotional words. A variety of explanations could be offered for the impaired learning under LSD on the second test. A simple explanation is that it was a longer and hence more difficult task. This would make it much more trying for LSD subjects whose attention span is limited. Another way of looking at the results is in terms of the LSD subject's inability to compartmentalize, or to separate one event from another. The hypothesis is offered that, along with his general failure to place bounds on perception and feeling, the LSD subject may also tend to lose cognitive boundaries. In the longer test, the subject has a greater reservoir of recently learned material to confuse with the required response. This hypothesis could be tested by repeating the original study and analyzing the learning errors made by LSD subjects as compared with those in the control state.

A study of Dual Pursuit performance was conducted with 20 subjects (Silverstein and Klee, 1960). The Grether Dual Pursuit apparatus was employed. In this test the subjects' task was to keep two pointers, one vertical, the other horizontal, centered on their target marks, controlling them by means of two knobs, one operated by each hand. The pointers drifted slowly off their targets, and the subjects had to turn the knobs to return them to their marks. The time that both pointers were simultaneously on target was automatically cumulated for each trial. Learning and performance of this task were significantly impaired during the height of the drug reaction, as compared with controls. It appeared that this impairment was primarily related to a difficulty in concentration.

Now the significance of such intellectual impairment must be considered, especially in relation to ego functions. Conscious thought is considered to be mainly or entirely within the "conflict free ego sphere". The adaptive functions of thought are well recognized. Freud speaks of thought as "an experimental way of acting". In the same paper he gives some emphasis to the role of memory as a foundation for conscious thought.

In Ego Psychology and the Problem of Adaptation, Hartmann presents a detailed analysis of the role of thought in adaptation. He states:

> The intellect implies an enormous extension and differentiation of reaction possibilities; it subjects the reactions to its selective control; it creates and utilizes means ends relationships. By means of causal thinking connected with space and time perception, and particularly by turning his thinking back upon the self, the individual liberates himself from his slavery to the stimulus-reaction compulsion of the immediate here and now. The intellect understands and invents; according to some views its function is more to pose than to solve problems; it decides whether the individual is to accept the reality of an event or to change it by his intervention. . . .

LSD subjects have also been noted by some observers to lose the ability to think abstractly. DeShon et al. have reported that subjects asked to interpret proverbs often give very concrete answers to them. Others give abstract answers which are wide of the mark. We have ample experience with LSD subjects which confirms this finding. In order to study this area more systematically, the Gorham Proverbs Test was administered to 16 subjects under drug and control conditions (Silverstein and Klee, 1958). The test, using a fairly wide selection of proverbs and allowing for controls, confirms and extends the clinical evidence for impairment of abstracting ability in LSD subjects. It is not to be supposed that this phenomenon is limited to the subject's ability to interpret proverbs. This is only one of many tests of abstract thinking or conceptualization that would be affected. Moreover, this change in thought processes is representative of a general and profound alteration of the LSD subject's experience of himself and his environment. This "concrete attitude" is one of the most impressive aspects of the LSD reaction, but is one which, by its nature, almost defies description by the subject on the abstract verbal level, at the time of the experience. Among its numerous manifestations is the pictorial quality of thoughts, which are poorly differentiated from real objects. The relationship to objects, including people, takes on an unusual quality and depth and an immediacy which dissolves the ordinary experience of continuity from moment to moment. Moreover, as noted earlier, the subject may be unable clearly to differentiate himself from his environment.

The following quotation from Goldstein is relevant to the discussion at this point. Goldstein's observations of concretism in large numbers of patients with schizophrenia and organic brain damage led to this statement:

> The concrete attitude is realistic. In this attitude we are given over and bound to the immediate experience of the given thing or situation in its particular uniqueness. Our thinking and acting are directed by the

> immediate claims made by one particular aspect of the object or situation in the environment.
>
> In the abstract attitude, we transgress the immediately given specific aspect or sense impression; we abstract from particular properties. We are oriented in our action by a more conceptual viewpoint, be it a category, a class or general meaning under which the particular object before us falls. We detach ourselves from the given impression and the individual thing represents to us an accidental sample or representative of a category. . . .

The remarks of Hartmann and of Goldstein enable us to appreciate how impairment of intellectual functions by LSD contributes to the unique experience which it creates.

The effects of LSD on the associative process were studied by the use of the word association test of Rapaport (WAT) (Weintraub, Silverstein, Klee, 1959). In this study 25 normal male subjects were administered the test 1-1/2 hours following a dose of 2ug/kg of LSD. Their responses were compared with those of a control group. In this test the subject is asked to respond with a spontaneous association to each of 60 stimulus words. Twenty of these words are considered to be "traumatic" and include such words as breast, masturbate, and mother. "Nontraumatic" stimuli include such words as chair, screen, and farm. Responses are rated on the basis of reaction time and on the basis of the quality and appropriateness of the response.

As compared with normal controls, LSD subjects were found to make more errors, have fewer popular responses, and to react more slowly. In addition "close reactions" predominate. (This is one of Rapaport's response categories and is exemplified in the extreme form by such responses as clang associations, definitions, and repetitions.) Serious deviations are also prominent, and the differential reaction to traumatic and nontraumatic words is abolished; that is to say, LSD subjects frequently responded to neutral words as though they were traumatic words. It is of significance that these responses following LSD differed not only from the responses of the normal controls but from the results obtained by Rapaport from schizophrenic, depressive, and neurotic patients. Of particular interest is the loss of differentiation of responses between traumatic and nontraumatic words. As we have suggested previously (Weintraub, Silverstein, Klee, 1959), there appears to be a dissolution of boundaries between the autonomous and conflictual areas of the ego.[2]

Another interesting way of regarding this result is suggested by the work of Bridger who cites neurophysiological results of several authors which indicate that such drugs as LSD and mescaline "inhibit neocortical activity and activate the limbic system". (The evidence does not support the sweeping statement that these drugs "inhibit neocortical activity", but as mentioned earlier there appears to be an impaired conduction along association pathways, which is sufficient for Bridger's hypothesis.) On the basis of this evidence he postulated that such drugs would prevent the subject from being able to differentiate the signifier from the signified, or, in his experiments, the conditioning stimulus from the unconditioned. Bridger then went on to test this, using mescaline (which has effects almost indistinguishable from those of LSD), and found that indeed the stimuli were not differentiated from one another. The animals squealed and howled to the signal for the shock just as they did for the shock. Bridger offers the plausible explanation that in the absence of effective neocortical function the activated limbic system is unable to differentiate the two stimuli, thus leading the animal to react to both in the same manner. It is of interest in passing to observe the close analogy to the "concrete attitude" in humans, in which the signifier is also poorly differentiated from the signified, or the symbol from the object. Thus far, however, Bridger's concepts do not explain the loss of differential response to traumatic and nontraumatic words in our subjects. A further inference may be helpful. Starting with the premise that discrimination is impaired on the basis of impaired neocortical activity, and there is activation of the limbic system, which is likely to be associated with a hyperemotional state, subjective response may be determined not so much by the quality of the stimulus as by the state of the organism. A "neutral" stimulus becomes a "traumatic" one because it impinges upon an organism which has poor ability to discriminate and which is prepared to respond emotionally.

---

[2] This interpretation of the results was suggested by Rapaport in a verbal communication.

These considerations represent only a limited explanation of the phenomena at hand and ignore many other equally plausible explanations. The best test of their value will come from further experimental studies in man and other species.

Defensive Functions of the Ego

In the preceding discussion little attention is given to the effect of LSD on the defensive functions of the ego as tested by the word association test. In a second study (Weintraub, Silverstein, and Klee, 1960) a group of LSD subjects were compared with a group of controls in their ability to "correct" deviant responses on the WAT. In this study both groups were given the WAT in a drug-free state. One week later the test was repeated in both groups. In the second week, however, the experimental group received 2ug/kg LSD 1-1/2 hours prior to the test. On the retest the control subjects (who were given no additional instructions) were able to "correct" a significant number of their pathological responses. The LSD subjects, however, tended to repeat their previous responses without any "correction". The authors hypothesized that normally there is a mobilization of ego defenses on the retest, enabling the subject to correct many of his original deviant responses. The failure of the LSD subjects to make this correction suggests a significant impairment of this defensive function.

This leads us to the general subject of the effects of LSD on ego defense mechanisms. We do not have additional completed experimental data on this subject, but a few clinical observations may be in order. It is generally remarked that LSD dissolves the repressive barriers, or that defense mechanisms are generally impaired. These statements, in my opinion, are not entirely accurate. It is true that the subject's ability to repress is likely to be impaired. But as these barriers are lowered, and charged material threatens to enter awareness, an increased mobilization of repressive efforts often occurs in waves, operating massively and crudely to block out not only the threatening material but much associated material as well. As repression fails further, various other more regressive mechanisms are brought into play, such as denial and projection. Only occasionally will defense mechanisms fail almost entirely in certain subjects and a panic state ensue. More often, new defenses are brought into play, and the subject reaches relative equilibrium at a more regressed level. Certain mechanisms, especially repression and reaction formation, appear to be most vulnerable to LSD. Other, presumably more primitive defenses, such as regression denial, introjection, and projection, may function very effectively. For example, some predisposed subjects are capable of developing highly systematized paranoid delusions under the effects of marked LSD intoxication. In each case, subjects tend to fall back on those defenses which are most available to them, based upon their personality structures. Underlying conflicts and the presence or absence of stimuli in the environment which may evoke specific conflicts also play a role. By applying these principles, one can make a fairly accurate prediction of how a chosen subject will react after taking LSD (Klee and Weintraub, 1959).

We may summarize by saying that LSD does interfere with the subject's ability to employ defenses in the most adaptive manner. The organism responds by mobilizing its resources and usually succeeds in achieving relative homeostasis at a new level.

Motility and Behavior

We have already mentioned the difficulties in physical coordination experienced by LSD subjects, but there are also behavioral phenomena which seem worthy of description.

In "Formulations Regarding the Two Principles in Mental Functioning," Freud noted the function of thought as a means of postponing action. "Thought, was endowed with qualities which made it possible for the mental apparatus to support increased tension during a delay in the process of discharge." Thus, when a drive attempts to express itself, the human is capable of pausing, weighing the situation, and, if necessary, postponing the energy discharge which the drive calls for. Very often the drive fails even to reach consciousness, if, in accord with the person's training, the time and place are inappropriate for its expression.

Considering the extensive impairment in thought processes produced by LSD we should expect some interference with this ability of the organism to bind tension and delay discharge. Actually, most LSD subjects remain rather passive while under the influence of the drug, avoiding direct mental and physical activity if possible.

There are exceptions, however. On some occasions during our studies we have seen subjects who found it difficult or impossible to control their behavior. These were usually persons who were rather aggressive and impulsive to begin with, but it sometimes occurs in other types. In the experimental setting, of course, these subjects were usually friendly and cooperative initially, but after taking LSD they found themselves overwhelmed with impulses, often of an assaultive nature. These feelings sometimes appeared to arise spontaneously or were provoked by a relatively slight incident, such as a painful venipuncture or a witticism directed at them by another subject. A subject at such times could barely resist putting his impulses into action. He would pace about, clench his fists, and grind his teeth to maintain control. Sometimes full-blown panic would ensue in the face of homicidal impulses which the subject felt he might be unable to control. One subject developed what appeared to be an hysterical paralysis of his limbs, apparently as a last-ditch control against assaultive behavior.

Such occurrences would lead us to believe that, for some subjects at least, there is an impairment of the ability to tolerate tension and to delay discharge. Further light is shed on this question by a study employing the Porteus Maze test (Aronson and Klee, 1960). This test consists of ten paper-and-pencil mazes graded for difficulty from very simple to very complex. Given unlimited time and several trials to complete each maze, the individual is given a score based upon the complexity of the mazes completed and the number of trials needed. The test is described by Porteus as a test of "social adaptability" or the ability to both inhibit impulsive solutions and execute critical planning toward the achievement of goals. Validation of these claims has been demonstrated by a number of studies in which the test has consistently differentiated between individuals of contrasting degrees of social adjustment, as determined by other criteria. Moreover, prefrontal lobotomy has repeatedly been shown to impair performances on the Porteus maze. It is well known, of course, that the lobotomized patient's behavior is characterized by poor judgment and poor impulse control.

Our results can be summarized very briefly. As compared with controls, subjects given 75ug or 100ug LSD showed marked impairment of performance on this test. Impairment was greater at the higher dose. The differences were highly significant statistically. These results not only confirm the clinical observations, but also demonstrate that the functions of judgment and impulse control are impaired, even in individuals in whom such impairment is not clinically evident. Apparently, other adaptive mechanisms, such as withdrawal and restriction of interest and effort, come into play to mask this impairment clinically in the majority of persons under the influence of LSD. Thus, the capacity for good judgment and impulse control is impaired by LSD, but many subjects succeed in employing adaptive mechanisms which mask this deficiency. Others may be less successful in doing so, especially when in a heightened affective state for whatever reason. Many of the considerations discussed earlier under the subject of ego defense mechanisms apply here as well. Subjects with a wide repertory of adaptive mechanisms (or defenses) at their disposal and with a minimum of strong psychic conflicts are least likely to give way to impulsive behavior.

Improvement of Ego Functioning Under LSD

Sometimes when a subject is under the influence of LSD he will show signs which suggest "better" ego functioning. He may be more imaginative, freer, less defensive, wittier, etc. I am not convinced that such changes represent true enhancement or improvement of ego functions. A more parsimonious and a more plausible explanation is that moderate doses of LSD, like moderate doses of alcohol, may release the shackles of the inhibited person. An individual may thus experience a release of ego functions from repressive influences, with the apparent result that ego functioning is "better". We may also compare this change in some individuals with Kris' concept of regression in the service of the ego. (Kris, E.: The Psychology of Caricature, Int. J. Psychoanal 17:285-303, 1936.) As Kris has pointed out, many creative persons are able to regress to more primitive ego states in pursuit of creative material. This is a reversible process which is not incompatible with a "healthy ego". Such a regression can be aided and deepened and even made more colorful with the aid of LSD. For the well-integrated individual this regression may be welcome and useful, but it does not represent a genuine enhancement of ego functioning.

Comment

The preceding discussion touches only upon a small sample of the seemingly infinite variety of LSD phenomena, and much more could be said in the areas which are discussed. Another criticism is that the great bulk of literature on LSD has not been considered. My purpose will have been satisfied, however, if this attempt to organize some limited experimental data into a theoretical framework will illustrate the need for further efforts of this kind, both to give greater meaning to the data and to generate new hypotheses for additional study.

In its short history, psychiatry has developed at a pace which has been, to external appearances, disappointingly slow at times. During this period, however, the basic tools and concepts of psychiatry and related disciplines have been developing. It is this basic framework which has made possible the dramatic surge of experimental psychiatry in the past few years. Drugs with effects comparable to those of LSD-25, for example, have been known for generations, but it is only recently that we have been in a position to study them meaningfully. The long awaited millenium in which biochemical, physiological, and psychological processes can be freely correlated still seems a great distance off. This should not discourage us from responding to the occasional opportunities for observing parallels between these different orders of phenomena as are afforded us in experimental studies. Attention to these matters should be of great heuristic value and may also permit us to regard some aspects of personality functioning on new conceptual levels. The future promises increasingly rapid progress in our understanding of human behavior, since we need not rely entirely on the "experiments of nature" or the slow uncontrolled process of psychotherapy for our raw data, but can manipulate many psychological variables in the laboratory, under careful scrutiny. Many of our traditional concepts will probably be fortified with fresh evidence, others will be modified or discarded, but they will have served their purpose in serving as a foundation for further developments.

Summary

A series of psychological studies with lysergic acid diethylamide (LSD-25) performed by myself and my associates with several hundred "normal" human subjects are described. The experimental data are discussed in relation to psychoanalytic ego psychology with an effort to demonstrate the usefulness of this theoretical model in understanding the effects of LSD. The field of discussion is also extended by introducing some tentative theoretical formulations which attempt to correlate certain psychological and physiological phenomena associated with LSD.

LSD: RESEARCH & JOY RIDE[1]

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

LSD 25, an indole derivative from ergot, was synthesized by Hoffman in 1938, but for a good many years little attention was paid to the drug. Then, within the past year or two, interest in this psychedelic or "mind manifesting" drug has soared among both professionals and the lay public. LSD has been widely publicized in nonmedical publications, a number of sociologic studies exist, and a journal has been founded to report experiences resulting from its use.

Three different approaches to LSD have been described and studied to date. The first is the experimental administration of the drug in controlled laboratory setting, a record being kept of subjective and/or objective effects. Initially the so-called "model psychoses" induced by LSD were compared with schizophrenia and with delirium. However, this method of comparative study has proved to be somewhat disappointing.

The second aspect of study has been the psychotherapeutic use of LSD to increase awareness, lift repressions and facilitate insight during psychotherapy. LSD is also used for treatment of specific disorders such as alcoholism.

The third type of study, and the one which concerns us most, has to do with the psychiatric side effects that follow ingestion of LSD. Most of this study is concerned with self-administered doses of the drug. The side effects occur regardless of the sources of the drug and regardless of the setting in which it has been administered, but far more LSD is bought on the black market (it is either imported illegally from Mexico or produced locally by amateur chemists) than is given experimentally or psychotherapeutically. LSD obtained on the street often contains a number of impurities; sometimes other compounds (among them atropine) are sold allegedly as LSD. Black market doses, usually diluted as they are passed on, contain an unknown number of micrograms of LSD.

Psychiatrists throughout the country have been observing increasing numbers of severe side effects from the drug over the past seven or eight months. (An excellent early personal account of a "bad trip" from LSD as "They Split My Personality" by Harry Asher, Saturday Review, June 1, 1963.) At the UCLA Medical Center, approximately one psychiatric disorder associated with LSD ingestion had been turning up every other month.

---

[1] The Nation, May 16, 1966, pp. 574-576.

However, beginning in September of 1965, the figure jumped to between five and fifteen cases a month. Other local facilities in the Los Angeles area have reported a similar increase. The new Federal Drug Abuse Control Amendments of 1965, which went into effect on February 1, have had no apparent effect in decreasing the number of LSD cases seen in our psychiatric emergency room. About one-third of the LSD cases at UCLA have required admission to the psychiatric hospital; approximately half of these to the ward on which the authors work.

In addition, we have conducted group therapy sessions once a week for several months among all the hospitalized LSD patients whose doctors would permit them to attend. The purpose was to learn what reactions these patients had experienced and to become acquainted with the patients themselves. The LSD users who come to the hospital are primarily young, single, Caucasian, male; few are religious. They live throughout the Los Angeles area, but particularly in the Hollywood section and the beach cities. Most of them are unemployed, but some are students. Many of our patients had used other drugs besides LSD, particularly marijuana; some had taken LSD as often as sixty times. These people came to the emergency room suffering from confusion, anxiety, depression, suspiciousness and hallucinations.

During this study we became curious about the overall LSD population. Were we seeing atypical reactions or were others reacting the same way to LSD but not being brought into the hospital? As word spread of our interest, informants began to appear at the hospital. They told us of other LSD users in the community and of their aberrant behavior. We heard about people wandering about in chronic states of confusion, and the psychiatrists on duty at the hospital received many phone calls about threatened or already attempted suicides and other disturbed behavior. Many of these people refused to come in to the hospital.

We then began to go out into the community and attended a number of LSD sessions held in private homes or "pads". We observed what we would consider obvious psychotic behavior: suspiciousness, grimacing, inappropriate affect, apparent hallucinations and motor restlessness. These effects seemed eventually to wear off and the patients we saw did not apparently harm themselves that day. We heard about others who had had unpleasant symptoms or utterly lost contact, and then recovered only to have these symptoms return weeks or months later without their having taken LSD again.

Besides these acute difficulties, there are other, more chronic problems. For one thing, LSD seems to affect a person's value system. We have found that in many instances formerly productive individuals have adopted the attitude that one should live merely for subjective experiences, and not play the various "games" -- like work -- that society demands. We have met this attitude in musicians, lawyers, psychologists and doctors. Since many people who experience this change of attitude are never seen by psychiatrists, one can only speculate as to its frequency.

Another chronic difficulty is perceptual distortion. For example, a band leader phoned us because his players were producing such terrible music. Nor could he talk to them, for they were on LSD and utterly convinced that the band was playing the most beautiful music ever heard. A law student told us that LSD had given him such new insight and opened such horizons that he felt his legal studies were dull and boring by comparison. He speculated at length about the advisability of giving the world's leaders LSD so that they would love and not hate. At last contact he had not decided whether to pursue his law studies or to continue with LSD full time. We have observed this degree of subjective distortion among many LSD users. A group of them whom we studied fairly intensively over several months were convinced that they could "pick up vibrations" from other people, that they could tell if someone else had used LSD by casual inspection, that they had a keen awareness of music and art. Nevertheless, objective tests showed that their ability to discriminate was below normal, and that their powers of observation had been actually decreased by LSD.

At various community dances which we attended, the young girls were in their "psychedelic slacks" and the teen-age boys wore long hair and sunglasses. They moved beneath undulating lights in bright "psychedelic" colors. At such gatherings the drug seemed to replace personal contact and to substitute for the drives of sex and aggression. We watched seven or eight sailors dancing with one girl on the floor. There was little male-female awareness or physical contact; each was in his own fantasy world.

The criteria for mental health, according to Freud, are the ability to work and to love, and LSD users seem to deteriorate in those very areas. We have already mentioned the numerous individuals we have studied who have either lost their jobs or lost the incentive to work after using LSD. The ability to love, that is to have psychic intimacy with another person, seems also to be decreased by LSD. In contradiction to the claim that the drugs help one to get closer to people, we note that users become more introspective and invested in themselves. The extreme results are autism and psychosis.

Advocates of LSD have maintained that proper screening techniques would enable one to predict individual reactions to LSD and to eliminate those who would have "bad trips". Our experience at UCLA indicates that such predictions are extremely unreliable. We know of patients who, though carefully screened for research purposes, suffered severe LSD reactions, with dramatic alterations of their value systems, resulting in a diminished level of functioning. On the other hand, we have come across members of the community whom we would have judged fairly unstable but who showed little or no change after using LSD.

The number of high school students and teen-agers who take the drug is increasing rapidly. Most adolescents are struggling with feelings of aggression and sexuality, along with their need to establish an identity. LSD can seem a "magic" solution to such problems. It offers a ready-made identity with fellow users and the introspective experience helps to deny the feelings of both aggression and sexuality. Their conversation becomes "acid head" talk. Bad "trips" are "freak". Every stranger is "the man" (police) and to talk to one would be to "cop-out" (squeal). Suspicion to the point of paranoia is common. The adolescent is frequently overwhelmed by the LSD experience, with the result that the search for identity becomes a florid psychotic nightmare. There is perhaps no period of life more loaded with conflict, and one might therefore expect that adolescents who took LSD would experience severe complications, including panic states, prolonged psychosis and severe depressions.

Another disturbing aspect of LSD usage is the missionary zeal it seems to induce in many of its users. We have no doubt that the enthusiasm is sincere, since we have come upon cases of mothers who have given LSD to their children, brothers who have encouraged their sisters to take it, and many individuals who have selected their closest friends and used every possible means to convince them that they too should share in the world of psychedelia. In several instances, individuals have devoted a great deal of their energies to buying LSD and passing it out free among the population in an attempt to "save the world".

The right environment for taking LSD (often alluded to by acid heads as necessary for a good trip) means having a "sitter" to guide you through the LSD state. However, neither a favorable environment nor a guide guarantees a pleasant or meaningful experience. If the trip goes bad, and LSD users are brought to a medical facility in the acute phase, tranquilizers and barbiturates will help most of them, but not all. Many of our hospitalized patients have remained in the hospital for more than a month.

Until more is known about LSD and its short- and long-term effects, it must be considered a very dangerous drug. Unfortunately, the ready market for and easy manufacture of the drug have resulted in an almost unlimited black market supply, and the buyers are often the very people who have the most to lose from its use. We certainly hope that LSD research will be continued, but we appeal to those who loudly proclaim that "everyone" should take LSD to remember the highly subjective response to the drug. We have known the most ardent enthusiasts to become the most eloquent opponents -- often after just one bad experience.

The controversy continues to rage, some investigators maintaining that side effects are frequent, others stating that the potential gains far outweigh possible side effects. We are worried by what we have seen. California and other states are now considering legislation to supplement existing federal legislation; Sandoz Laboratories, the principal legitimate source, had discontinued manufacture. The future of LSD remains controversial and uncertain.

LSD TODAY[1]

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

One of the most powerful drugs available today is d-lysergic acid diethylamide tartrate, commonly called LSD^{25} or, by users, "acid," or "L". It would be extremely difficult to provide a comprehensive picture of the drug itself, without taking into account the controversies its very existence has engendered; an "LSD hysteria" seems to have engulfed everyone. There has been so much written and aired about LSD, a great deal of which has been seductive publicity, that misinformation is widespread, and the highly vocal nature of both protagonists and detractors has served to further becloud the facts. For example, the authors have received literature which claims that all LSD use in the United States is a communist plot. Letters have also been received warning that God will strike dead anyone who does not recommend LSD to everyone. LSD was a political issue in the recent California Governor's race. The drug has been implicated in everything from police brutality to the Vietnam situation. "Believers" insist that it offers instant happiness, instant creativity in art or music, and an instant shortcut to fame and acclaim for architects and those engaged in similar professions. This testimony vies with that of the total disclaimers who insist that LSD is more dangerous than heroin, that it should be outlawed completely including research, and that all proponents such as Doctor Timothy Leary should be prevented from speaking or even from advertising in newspapers.

The fact that both laboratory investigators and clinicians have encountered unusual difficulties in attempting to understand this unpredictable drug has done little to lessen the confusion. A part of that problem has been the fact that the picture is constantly changing. At first, LSD-induced difficulties were commonly seen among chronic drug abusers, but now, and increasingly, youngsters are seen who experimented once with the drug, got over the acute effects and then, a number of months later, began to experience a recurrence of the original symptoms without ever having taken the drug again.

The single legitimate manufacturer of the drug, Sandoz Laboratories, discontinued production of LSD early in 1966, and turned over all existing supplies of the drug to the National Institute of Health. Thus, the black market has become the only source of almost all obtainable LSD and many investigators subsequently have left the field of LSD research with vital questions about the drug still unanswered.

---

1. Medical Digest, July, 1967, pp. 33-37; 40-42.

Unfortunately, lurid publicity seems only to have heightened interest, and while scientific investigation has decreased, experimentation by thrill-seeking individuals has steadily increased and broadened in range. Where LSD was originally used mainly by intellectually curious adults, its use has now spread to the populations of colleges, high schools, and even junior high schools, crossing all socioeconomic barriers.

The Legal Situation

On the federal level, it has been illegal to possess LSD for manufacture or distribution since the Drug Abuse Control Amendments of 1965. Subsequently, California and a number of other states have passed laws making mere possession of LSD illegal, but LSD is colorless, odorless and tasteless, and can be concealed on the back of an envelope or stamp, or soaked into a suit or sweater. Thus, it is possible to "take a trip" (have an LSD experience) merely by licking the envelope or stamp, or sucking or chewing on the coat or sweater. In addition, there is no applicable chemical test which will reveal LSD *in vivo*, once it has been ingested, and the equipment to test for the presence of the drug, *in vitro*, is very expensive and not generally available to law enforcement agencies.

Furthermore, the usual dose of LSD is 100 micrograms, or about three and a half millionths of an ounce. These facts combine to mock legislation, defy detection and ease the lot of the user.

The cost of the drug has risen, of course; it was originally anywhere from 50¢ to $2.00 for the usual "dose", but is now between $5.00 and $10.00. However, in contraband exchanges, the entire question of quantity remains confused and obscure. Users claim to know exactly how many micrograms they are paying for, and the specific amounts they are ingesting, but several spot checks with chemical analysis revealed no instance in which the users' estimates were even close to the number of micrograms they actually received; according to the samples tested, they all over-estimated the amount of LSD in the material they purchased. However, all samples which were claimed to be LSD actually did contain the drug.

Historical Factors

Lysergic acid, the basic compound from which LSD derives, is found in ergot, a fungus that attacks rye kernels. LSD was synthesized in 1938 by a Swiss scientist who was named Hofmann.

He discovered its hallucinogenic properties in 1943 by accidental ingestion of the drug. Compounds with a similar pharmacologic effect are found in morning glory seeds, in the Mexican "magic" mushroom which contains psilocybin as the active alkaloid, and in the peyote cactus buttons which contain mescaline. (Nothing psychedelic has been identified in banana skins, or "mellow yellow", and such claims are probably a giant hoax.) However, although these, too, are psychedelic agents, LSD is many times more powerful in its effects. The term psychedelic means mind-manifesting, and this refers to the perceptual changes which occur during the LSD-induced state. The mind becomes flooded with sensations. Each user has a highly personalized experience. Some people say they can "hear" colors and "see" sounds. Others experience mystical or semi-religious feelings under the influence of LSD. These perceptual changes have given rise to fads in "psychedelic" art, music and clothing, meaning those that are vivid in color, sound or design. Also, these perceptual changes are responsible for many of the claims that LSD produces creativity and enhances problem-solving ability, whether these qualities have been latent, dormant, or even non-existent.

Clinical Effects

In the research into various aspects of LSD, subjects who have first been screened by psychiatric interview and psychologic testing have been observed after LSD administration for both subjective and objective effects of the drug in carefully controlled laboratory experiments. The subjective effects have to do with perceptual changes: the subjects report what they are experiencing and then view pictures, smell flowers and listen to music, while investigators log their verbal responses to these stimuli. Reactions to LSD ingestion which can be objectively observed are very few: most commonly, the pupils are dilated, resulting in an LSD-induced photophobia (which is why users have been noted to wear sunglasses at night). Transient increases in blood pressure, pulse rate and blood sugar have been reported, along with transient chilliness and flushing of the skin. LSD-induced amnesia has recently been claimed as a defense against prosecution for robbery and murder, but this phenomenon has not been substantiated by clinical evidence and, in fact, may be said to occur rarely, if ever. In fact, heightened, if disoriented, perception of events is the rule.

LSD is not physiologically addicting in that habitual users do not have withdrawal symptoms upon discontinuation, but it is psychically addicting or habituating in that, once having experienced its effect, users want to repeat the LSD experience, often becoming so emotionally dependent that they will make great sacrifices to continue to take the drug. Lethal over-dosage has not been reported in humans. Both scalp and depth electroencephalograms have revealed abnormal changes in man and animals after LSD ingestion which lasted from one to two weeks, but chronic brain damage has not yet been demonstrated. In fact, chromosomal damage in white blood cells of users has just been reported and confirmed. The mechanism of action of LSD is still unknown, although a number of theories have explored the likelihood of chemical and enzyme changes in the brain, particularly having to do with serotonin antagonism.

LSD in Therapy

There was a good deal of fanfare and an aura of expectant enthusiasm, initially, over the therapeutic possibilities of LSD, and certainly the drug has been applied to a wide diversity of clinical problems. It is reported to have helped alcoholics to stop drinking when all other measures have failed, and it has also been given to terminal cancer patients to help them become less sensitive to pain so that they might die with greater dignity.

In conjunction with psychotherapy, LSD has been introduced in a wide variety of conditions. It is said to have helped patients recall long-buried memories of early experiences by facilitating insight and lifting repressions. A number of extravagant claims have been made for its value in all types of sexual problems, with homosexuality, impotence and frigidity reportedly responding to LSD.

These therapeutic claims for LSD must be evaluated critically, since the successful results, claimed or achieved, may well have been influenced by patients' expectations of improvement, as with hypnosis. Also, many of the claims have been subject to the bias of their reporters, since these have not infrequently been users of the drug themselves. It is most unfortunate that at this time we do not know how helpful LSD might be, and we may now never have the opportunity to discover, through appropriate research, how to channel this powerful chemical tool into productive clinical purposes because of its clouded future. Nonetheless, to summarize LSD's presently known therapeutic value, in the opinion of the authors, this must be considered unproven to date.

Side Effects

This is an area where a great deal of misinformation exists. At UCLA, until September, 1965, a patient was seen approximately every other month with complications of LSD ingestion. At that time, the incidence began to increase gradually from five to 20 patients seen each month, and for each patient actually seen, as many as three to five telephone calls were received at this facility from other users who were also in trouble after having taken LSD.

A study was made of the first 70 patients seen: they came in most commonly with frightening auditory and visual hallucinations, followed by anxiety to the point of panic, depression with suicidal thoughts and some serious suicide attempts, and confusion. The group was made up of single men, all Caucasians, with an average age of 21. They came from throughout the Los Angeles area and most were either unemployed or students. There were 40% who had taken drugs other than LSD within six weeks of being seen at the emergency room; 36% had histories of chronic marijuana use, but 40% had never taken drugs other than LSD.

In group therapy sessions with the 25 of the 70 who were hospitalized, the authors began to learn about the sub-culture of the "acid head" and the user's view of a "freak-out", or in more familiar language, the patients' descriptions of their acute bad experiences from LSD. In addition, the authors began to observe LSD parties and "happenings" throughout the state of California, including everything from beatnik gatherings in Big Sur, "kick-type" parties in the Hollywood area, "religious" rites in Orange County and college affairs at which students gathered to experiment with LSD in the San Francisco area, as well as "love-ins" and "be-ins" throughout the State.

Two particular characteristics of the acute side effects from LSD are particularly noteworthy. First of all, it is totally impossible to predict who will have a bad experience or when it will occur. Many people have had a bad experience the first time they used LSD, but others have had as many as 100 previous good experiences before encountering complications. Not psychologic testing, nor psychiatric interview, nor absence of symptoms, nor history of job stability can insure the user against having a bad experience. Some of the worst experiences have been reported in young physicians and others who were carefully screened before being given the drug, or who had had previously been through psychoanalysis and were presumably normal. On the other hand, the authors have seen extremely disturbed marginal people who claimed to have taken huge amounts (up to 2000 micrograms) of LSD daily for periods of months, and yet they showed no discernible increase in overt symptomatology.

Second, it is important to point out that recurrences may occur with full intensity, and with equal unpredictability. All of the original side effects of a bad experience may recur for as long as 18 months after LSD ingestion, and these events may have their onset during stress or when there has been no apparent stress whatsoever.

Treatment of Acute Episodes

The acute LSD reaction is treated by restraining the person and preventing him from harming himself or others. Interpersonal rather than mechanical restraint is usually effective. Tranquilizers are also used, particularly chlorpromazine (Thorazine) which is usually, but not always, effective when used in various doses. Barbiturates have also been employed with some success. In the acute stages, psychiatric support should be focused upon reassurance that the effects will wear off and the patient should be encouraged to relax and not fight to differentiate which of his perceptions are accurate and which are drug-distorted. As LSD guides or sitters say, "Flow with it, don't fight it."

Homicide and acts of violence are rare under the influence of LSD, but suicides are not, and accidental deaths are even more common. For example, an LSD user walked onto a freeway and stood in the path of the oncoming cars, saying "Halt!", fully believing that his LSD-induced power would stop the cars. He was killed.

Driving while under the influence of LSD is indeed a hazard, for the center divider may appear to weave, or two headlights from an oncoming car may seem to be a hundred.

LSD Tradition and Fallacies

A whole LSD folklore has grown up around the user's need to rationalize away helpless feelings engendered by a "bad trip". For example, the mythology is that if the user is attended by a guide or sitter to get him through the experience, if he is with one or two good friends, if he has the right mental attitude (has not had a fight with his girl friend or boss), and is in a room with soft lighting, sitting on a thick carpeting or mattress, listening to the Indian music of Ravi Shankar, reading reassuring phrases from the "Tibetan Book of the Dead", and if he is armed with a tranquilizer close at hand, as well, he cannot have a bad experience.

These notions, of course, are nonsense, and the authors have had to hospitalize many patients who had taken care to arrange for all these devices for insuring a "good trip", including a number of veterans of many other previous good LSD experiences.

This particular bit of folklore refers to the set (the attitude with which the LSD experience is approached) and the setting (the physical environment in which the LSD is taken), and to an extent, set and setting are as important to the LSD state as they are to the process of hypnosis; both the good hypnotic subject and the LSD user are passive and highly suggestible. That is why some of the worst reactions have occurred in persons given LSD without their prior knowledge and in children who got into their parents' "sugar cube" supply. It is not hard to imagine the horror of experiencing perceptual changes -- of seeing walls pulsate or faces melt -- without adequate preparation.

Chronic Side Effects

A particularly striking chronic effect of LSD is the dramatic shift in the user's value system, and this may occur after taking the drug only a few times. Many users lose interest in working; they often leave their families and become quite withdrawn, devoting most of their time to thinking, writing and talking about LSD.

Another chronic difficulty caused by LSD is perceptual distortion, a subjective feeling of improvement concomitant with an objective loss of functioning. Many users feel they are performing both successfully and productively at work or in creative pursuits when, in fact, they are in the process of losing their jobs. A mathematical engineer expounded that he could solve any problem at work while on LSD, in spite of the fact that he had been fired from his job and could not get another. A student claimed LSD helped him in school and that he had done beautifully on a recent examination -- however, LSD had made him realize that nine of the 10 examination questions were stupid, so he answered only one (correctly) and, not surprisingly, failed the test.

After listening to habitual LSD users, the authors were struck by the fact that although they professed great satisfaction, they did not give evidence of feeling as contented as they would have their listeners believe. While they continued to take LSD, they were usually experimenting with other drugs as well and, seemingly unaware of the contradiction, they would proudly claim that a mixture of drugs which they had yet to discover would soon provide the magic answer to life.

Another chronic change which occurs with repeated LSD use has to do with a decrease in the ability to love (love is used here in the sense of emotional intimacy or the ability to get outside one's self and relate to another person). Despite their claims to the contrary, most users become much more invested in themselves and less able to relate to others.

In several of the LSD "love sessions" the authors attended, the rooms were full of excited individuals proclaiming feelings of being especially close to the other members of the group present. However, what impressed the writers most was the number of monologues that were taking place simultaneously at these sessions. Very few of the participants were at all interested in, or paying any attention to, others. This is also substantiated by what most LSD users say about sex: As one user put it, "Why waste something as good as LSD on something as common as sex."

There is also a remarkable missionary quality among chronic users. The authors have seen mothers giving their infants LSD, people spending their life savings on LSD to pass it out free, and whole families who took LSD as a venture in "togetherness".

Discussion

Thus, it can be seen that LSD helps the user to deny the normal feelings of competitiveness, anger and sexuality while he is under the influence of the drug. This is the reason why the drug is particularly dangerous for, and yet has such a particular appeal to the adolescent. The teenager is struggling with problems of identity and is in the process of learning to handle the upsurge in instincts of anger and sexuality. He wants to learn who he is, and what he wants to become. Normally, he rebels and experiments sexually in order to find himself, but the changes evoked by LSD rob him during these formative years -- and thus, perhaps permanently -- of the chance to find a healthy solution to the problems appropriate to his age and so vital to his maturity. This is, thus far, the single greatest tragedy to accrue to LSD.

Today, many persons seem to be looking for instant happiness in a pill or capsule. LSD is the latest of many shortcuts to El Dorado, Nirvana, and the fountain of youth. The next generation may find LSD very outmoded, and perhaps, as Doctor Sidney Cohen suggests, they will carry an electrical apparatus around with them to stimulate, ad lib, the brain's pleasure centers. Instead of "turn on, tune in and drop out", as Doctor Timothy Leary now advises, perhaps their motto will be "plug in, turn on and buzz".

JOINT STATEMENT ON LSD[1]

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

Our experience with patients who have ingested LSD has focused on psychiatric complications of LSD usage. We have never given LSD in either the medical-experimental or the psychiatric-therapeutic situation. We have carefully scrutinized the records of all patients seen at the Neuropsychiatric Institute at UCLA since September 1, 1965. Approximately one-half of the hospitalized LSD patients have been treated on a ward directly under our care. Weekly group therapy sessions with hospitalized LSD patients were utilized to explore the personality structure, motivations, and attitudes of the LSD patients. We have also interviewed many high school students, college students, and other groups who used LSD. Part of our research has consisted of going into the community to observe the various users of LSD.

There is no question that the number of people using LSD is increasing rapidly. Prior to September, 1965, approximately one LSD case was seen every other month in the psychiatric emergency room of the UCLA Medical Center. Between September, 1965, and April, 1966, from 5 to 15 cases per month were seen for a total of 70 patients. In April of 1966, despite active attempts to discourage persons with LSD problems from coming to the hospital, 16 patients were seen. There were many additional telephone calls from persons in trouble from LSD. So far in May there has been no decrease in the number of cases seen.

Acute effects of the drug which seemed to bring patients into the emergency room were hallucinations, anxiety, severe depression and confusion. We have also seen persistent psychoses and severe suicide attempts after using the drug. Diminished interest in working and in living a productive life and an increase in philosophical speculations about LSD and its possible effects on the world is a frequent effect of the drug. LSD seems to provide more primitive defenses against the normal anxiety and depression that most people face in our society. We might speculate that people who have a great deal of difficulty tolerating the anxiety and stress of everyday living are provided, in a sense, with a psychotic defense by LSD. They hope to experience an estrangement from reality with the drug that prevents them from having to experience any anxiety or depression. Many LSD users seem to reject the concept of working within an organized society. Many people who use LSD and undergo this change of attitude afterwards are not seen by psychiatrists.

---

[1] Joint Statement on LSD issued to Senator Thomas J. Dodd, Chairman, United States Senate Special Judiciary Subcommittee on Narcotics, May, 1966; Washington, D.C.

We can only speculate as to the frequency of use of the drug, but from our observations we believe LSD usage to be very widespread. It is particularly widespread among younger persons. The average age of the users in our study was 21, with an age range of 16 - 36. LSD use is becoming particularly prevelant in colleges and, very recently, also in high schools.

Unfortunately, LSD lends itself particularly well to the adolescent. Most adolescents are struggling with feelings of aggression and sexuality, along with the need to establish an identity, and many young people see LSD as offering a "magic solution" for these struggles. LSD provides an introspective experience that helps them deny these feelings at the same time that it gives them "membership" in the group of LSD users with their common language, dress, etc. But many times the adolescent is overwhelmed by the LSD experience, and his search for identity becomes a florid, psychotic nightmare. Similarly, adolescents using LSD in an attempt to deny their aggression and sexuality are prevented from working out conflicts in these very important drives in a healthy way. There is perhaps no other period in our lives more loaded with conflict than during adolescence. Yet, this is the very age group that, by virtue of their struggles, are the most attracted to the magic promises of LSD.

A chronic effect that we have observed among many LSD users is a significant degree of subjective or perceptual distortion. A group of LSD patients that we studied fairly intensively over several months were convinced that they could "pick up vibrations" from other people, that they could tell by gross inspection alone if someone else had ever used LSD, and that they had a keen awareness of music and art. Nevertheless, when objective means were made to determine their alleged sensory awareness, it was seen that far from being more keen and selective, they were much less able to discriminate and their powers of observation seem to have been limited by LSD. Thus, there was a strong feeling of subjective improvement in many areas on the part of these LSD users, concomitant with an objective loss of function.

It is impossible to determine who will have severe reactions to LSD on the basis of the mental health of the user. We have seen extremely unstable individuals use the drug with apparently very little difficulty. On the other hand, people with emotional difficulties have had serious reactions to LSD. However, we have also seen individuals who seem to have been in good mental health who have become quite disturbed, and have suffered severe changes in their functioning following the use of LSD. Included in this latter group have been psychiatrists, psychiatric residents, psychoanalysts, and persons screened by personality tests.

Another disturbing aspect of LSD usage is the missionary quality that many of its users seem to possess. Most people who have used LSD are so affected by the drug that it becomes impossible for them to be objective when discussing its effects. There is a great deal of proselytizing and insistence on the part of users that other people must share the same kind of subjective awareness that an individual using LSD experiences.

We have no doubt that this is a sincere conviction on the part of many LSD users, since in our research we have seen mothers who have given LSD to their children, brothers who have encouraged their sisters to take LSD, and many people who have selected their closest friends and used every means possible to convince them that they too should share in the world of the psychedelic. There are several instances of individuals who have devoted a great deal of their energies to buying LSD and literally passing it out free among the population at hand in an attempt to "save the world". Some LSD users have said with great fervor that if the leaders of the various countries would only take LSD, peace would be established forever.

The possible therapeutic effects of LSD are not yet known. There has been some research on the use of LSD in patients dying of cancer in an attempt to alleviate their pain. Research has been done with LSD treatment for alcoholics in an attempt to terminate their excessive drinking. It has also been employed with psychotherapy in an attempt to lift repression and facilitate insight. However, as yet, no conclusive studies have proven LSD to be of definite benefit in any of these areas. We feel that continued legitimate research with LSD by medically trained scientists is essential.

However, the serious complications of LSD are definitely known and we *wish to emphasize them.* The ease with which LSD is made, the rapidly expanding illegal distribution of the drug, and the ready market for LSD, makes some type of Federal legislation essential. Yet, these same factors plus difficulties detecting the users, indicate that LSD usage will be very difficult to control legally. Some type of legislation which would limit the use and distribution of Lysergic acid, the precursor to LSD-25, might limit the widespread preparation of the drug throughout the country. In addition, we feel that a widespread educational program, especially directed toward high schools and colleges, should be attempted to alert the young people to the dangers of LSD.

THE DANGERS OF LSD[1]

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Marielle Fuller
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

Since the synthesis of lysergic acid diethylamide tartrate (LSD) by Hoffman in 1938, there has been an increasing interest among both professionals and the lay public in this psychodelic or "mind-manifesting" drug, which is an indole derivate of ergot.

Many writers have stressed one or another aspect of LSD during the past five years, but it is only within the last year or two that interest in this drug has mushroomed. LSD has been widely publicized in nonmedical publications; sociological studies exist; and a journal, The Psychedelic Review, has been founded which reports experiences resulting from LSD.

Medical and psychiatric interests in this drug have focused upon three somewhat different aspects of LSD usage. One method of study has employed the controlled administration of LSD experimentally with recording of resulting subjective and objective effects of the drug. These experiments have compared drug-induced "model psychoses" with schizophrenic psychoses and delirium.

A second type of study has derived from the therapeutic use of LSD to increase awareness and facilitate insight during psychotherapy or for treatment of specific disorders such as alcoholism.

The third approach to the study of LSD, and the one to which we address ourselves in this communication, studies the psychiatric side effects following ingestion of this drug, regardless of the setting in which it has been administered. Most LSD in the community is not taken as part of the medical-experimental or the psychiatric-therapeutic setting. There is a large black market in the drug, supposedly imported illegally or produced locally by amateur chemists. Some preparations claimed to be LSD contain impurities, particularly atropine-like compounds.

Psychiatric side effects of LSD administered either in the medical-experimental or psychiatric-therapeutic settings have been described. Side effects have been listed, and several categories of reactions to LSD have been described. The type of person who takes LSD has been investigated, and 12 of 27 patients hospitalized after LSD ingestion have been studied. Claims of changed awareness and functioning after ingestion of LSD, not strictly side effects, also are documented.

---

[1] The Journal of the American Medical Association, August 8, 1966, Vol. 197, pp. 389-392.

At the Psychiatric Emergency Room and Admitting Office of the Neuropsychiatric Institute at the University of California, Los Angeles (UCLA), Medical Center prior to September of 1965, approximately one problem case associated with LSD ingestion was seen every other month (Ulrich Jacobsohn, personal communication, January 1966). From September 1965 until April 1, 1966, the incidence of "LSD cases" increased to between 5 and 15 a month, 12% of all cases seen by the psychiatric emergency service. At the same time, there was no decrease in cases after the new Federal Drug Abuse Control Amendments of 1965 went into effect on Feb. 1, 1966. A similar but not so extensive increase in LSD cases has been observed at other nearby psychiatric facilities, the Los Angeles County General Hospital (Samuel Rappaport, personal communication, April 1966) and the Los Angeles Central Receiving Hospital (Kerny Sauer, personal communication, April 1966).

It is our purpose to present some of the characteristics of side effects following LSD ingestion. None of these patients had received his LSD from laboratory-experimental or psychiatric-therapeutic sources. All had obtained it from illegal sources.

The diagnoses from all psychiatric records of patients from the admitting and emergency rooms of the Neuropsychiatric Institute (NPI) during the seven months in question were reviewed. Where LSD was mentioned in the diagnosis, or implicated as related, the charts were reviewed. This sample included those cases in which a psychiatric resident saw the patient, and referrals from the medical emergency room and student health service. It included both those 25 patients who were subsequently admitted to the hospital and the remaining 45 for whom another disposition was made, a total of 70 during the seven-month period from Sept. 1, 1965, to April 1, 1966 (Table 1).

Table 1. -- Number of Patients Seen per Month of Study

Month	No. of Patients Seen
1965	
September	5
October	11
November	12
December	9
1966	
January	9
February	9
March	15
Total	70

Approximately half of the patients admitted to the NPI were placed on a ward under the care of the physician-authors. The NPI is an acute treatment center, where wards are open and admissions are voluntary. There are four adult wards of 24 beds each, with both male and female patients of all diagnostic categories admitted to all wards.

In addition, the inpatients from all four wards, with their psychiatrists' permission, were seen by the authors once each week in an open-ended group for a period of several months. The primary purpose was to acquaint us with the LSD reactions these patients had experienced as well as with the patients themselves as LSD users. Only a part of the observations derived from this group study will be presented here.

Results

General Characteristics: The 70 patients (Table 1) were 12% of the total of 606-patient psychiatric care load during the period. Fifty-three (75%) were male. The median age was 21 years, the range being from 16 to 36. Data on religion (69% complete) showed no significance. Fifty-six (80%) were single; four (6%) divorced; and two (3%), each married, separated, and widowed. All but four were from the greater Los Angeles area; the largest number, 14 (20%), were from the city proper. Occupations are shown in Table 2.

Table 2 -- Occupations of 70 Users of LSD

Occupation	No. of Patients
Unemployed	24
Professional	0
Student	
UCLA	7
High School	3
Other schools	6
Artists (musicians and artists)	3
Business	10
Housewife	3
Other*	1
No data	13
Total	70

*This patient was a dope pusher.

Diagnosis

Nineteen (27%) of the patients received diagnoses of psychotic; 15 (21%), neurotic; 13 (18%), character disorder; 7 (10%), addicts; and 8 (12%) each for miscellaneous diagnoses and multiple diagnoses. Six of those receiving multiple diagnoses were diagnosed as psychotic, bringing the total for all psychotic patients to 25 (35%) (Table 3). One diagnosis was made in 38 (54%) of the cases, two diagnoses in 27 (39%), and three diagnoses in 5 (7%).

Table 3. -- Diagnosis in 70 Users of LSD

Diagnosis	No. of Patients
Psychotic	
Organic (toxic)	5
Functional (schizophreniform state)	14
Neurotic (includes dissociative state)	15
Character disorders	13
Addict	7
Other (adjustment reaction of adolescence, borderline, etc.)	8
Multiple diagnoses (none primary)	8
Total	70

Drug History

In the period of more than six weeks prior to their being seen, 25 (36%) of the patients had used marijuana, 8 (11%) had used amphetamines, and 4 (6%) each had used heroin and barbiturates. Table 4 shows when LSD was last taken prior to the psychiatric evaluation, and the number of times the drug was ingested. One patient had taken it more than 60 times and one more than 20. Other drugs taken within six weeks of the evaluation included marijuana (14 [20%] of the patients), tranquilizers (4 [6%]), and amphetamines (4 [6%]). Thirty-three (47%) had taken no drugs other than the LSD, and six (9%) had taken a combination of drugs during this six-week period.

Table 4. -- Drug History of 70 Users of LSD

Time LSD last taken:	No. of Patients
Within 1 week	16
1 to 6 weeks ago	26
More than 6 weeks ago	20
No data	8
Total	70

Table 4. (Continued)

No. of times took LSD	No. of Patients
1	20
2 to 5	6
5 to 10	7
More than 10	30
Unknown	7
Total	70

Previous Problems

Seven (10%) of the group had been hospitalized previously (psychiatrically), one (1%) for alcoholism, and six (9%) for other reasons. None had previous admission for drug problems. Nineteen (27%) had previous psychiatric outpatient care. Thirteen (18%) had no history of psychiatric inpatient or outpatient care. No data were available for 31 (45%). Seventeen (24%) had parental separation or divorce for over six months before the age of 16; 31 (44%) did not. There were no data for 22 (32%). There were histories of jail terms for crimes for two patients and of delinquency for three, and five had been on probation for other offenses, a total of ten, 14% of the sample.

Present Illness

Presenting Symptoms: Some patients presented with more than one symptom; hallucinations (20, 29%) were the most common presenting symptom, followed by anxiety (17, 24%), depression (15, 21%), and confusion (14, 20%) (Table 5).

Inpatients vs. Outpatients: Only one major difference between the inpatient and outpatient groups is apparent. Nine of the 17 females (more than 50%), but only 16 of 37 (30%) of the males, were admitted to the hospital. The data were more detailed for the inpatients, who received more intensive study over a longer time. Twenty-five of the 70 patients required psychiatric hospitalization. Nineteen of these have now been discharged, and 12 of them (63%) required hospitalization of more than one month. One patient was hospitalized for almost five months and another for three months. Five of the six patients still hospitalized have already been in the hospital more than one month. Therefore, 17 (68%) of the patients required more than one month of hospitalization.

Comment

In the 70 cases reported here, the patients experienced serious reactions

Table 5. -- Presenting Symptoms

Symptom	No. of Occurrences*
Hallucination	20
Anxiety	17
Depression	15
Suicide attempt	5
Suicidal	5
Paranoid	10
Confused	14
Total	86

*Some of the patients presented more than one symptom.

following LSD ingestion. This is, to our knowledge, the largest such group reported to date. Other side effects have been reported, usually in individual case histories or as anecdotal accounts. Our sample differs from others in that all patients obtained the drug from illicit sources. None took it in either the medical-experimental or the psychiatric-therapeutic setting. Our sample differs in most respects from a previously reported experience in a university hospital psychiatric emergency service. This indicates that our LSD group is not a representative sample of the total psychiatric-emergency-room population but a special subgroup. It also differs in most ways from at least one studied group of 71 persons who took LSD. Our group is predominantly single, white, male, and young (average age, 21). The members come from throughout the Los Angeles area and most are either unemployed or students. Twenty-eight (40%) of the group had taken drugs other than LSD within six weeks of being seen in the emergency room. Twenty-five (36%) had histories of chronic marijuana use, but 28 (40%) had never taken drugs other than LSD. LSD problems among college students and on campuses have been studied. Our sample contains no professional persons, in contrast to the findings of others that "LSD seems mainly to be used by professionals, intellectuals or other middle-class people".

The number of patients seeking help did not diminish at all after the Feb. 1, 1966, deadline when the new Federal Drug Abuse Control Amendments went into effect. In fact, the largest number of patients seen in any month was in March 1966.

How do we know that the presenting symptoms really are caused by LSD and not due to some other cause with the recent LSD ingestion just a coincidence? We cannot prove a causal relationship, but we can say several things. First, the symptoms of anxiety, depression, suspiciousness, and hallucinations are among those commonly reported after experimental administration of LSD. Second, the patients themselves usually attributed the symptoms to the LSD, particularly when they had had previous experience therewith. A typical comment was, "It was like this before on LSD but I got over it -- I can't now -- this is a freak trip." LSD is largely gone from the brain at about the same time the mental effects begin, so that delayed reactions must be explained, perhaps on the basis of some triggering chain of events set off by the LSD itself. Symptoms which first began following LSD ingestion may recur months later in their original intensity, with no further LSD ingestion.

How do we know that those persons who react adversely to LSD are not already emotionally disturbed? Although few of our samples had police records, 26 (37%) had histories of previous psychiatric care, and 23 (33%) were unemployed, although we do not know whether the patients stopped working before or after taking LSD. One former disc jockey in the sample said that he had lost his employment after using LSD and had no ambition to start work again. A law student, not in the sample, told us that LSD (taken in a medical-experimental situation after screening by psychological testing) had opened up new vistas to him. He had "a perspective of the whole world now" and his legal studies were very dull and uninteresting by comparison. This abandonment of ambition, reduction in goal-striving, and inability to perceive one's own work performance accurately after taking LSD, has also been documented.

How do we know that persons taking LSD in a relaxed, friendly environment with an experienced guide or "sitter" will have serious side effects? We have no statistical data to answer this, but our impression (from our weekly group sessions) is that bad experiences were common with or without sitters and with or without "the right environment". This does not minimize the importance of suggestion in the LSD experience. Psychodelic trips are being taken without LSD or other drugs but a group given LSD experimentally, expecting hallucinations and psychosis, experienced essentially nothing more than a sense of relaxation.

The seriousness of these side effects is documented by successful suicides, serious suicide attempts, prolonged psychoses, and even a homicide. Although reversibility of side effects (including psychosis) with chlorpromazine and prompt medical treatment may prevent serious complications, this is not necessarily true, and will be dealt with in a future communication. In fact, one author maintains that orally administered chlorpromazine, unlike that administered parenterally, makes the LSD condition worse. However, one case exemplifies our concern.

Sample Case Report

This 22-year-old, single, white man became psychotic approximately 24 hours after the ingestion of LSD. He had both auditory and visual hallucinations and had used LSD once before without difficulty. Several parenteral doses of 50 mg of chlorpromazine, plus orally administered chlorpromazine up to 2,000 mg per day, and chlorpromazine in conjunction with trifluoperazine hydrochloride, resulted in no reduction or improvement of the psychosis. The patient improved slowly after a period of six weeks; the improvement was seemingly unrelated to the phenothiazine medication.

Even in this short-term-treatment facility, most hospitalized LSD patients remained for over a month. A larger number of admissions, both relative and real, than in other facilities in the Los Angeles area suggests the prevalence of a rumor that "UCLA takes care of the acid heads," as several patients have told us. The central location of the medical center seems to attract those persons using LSD from the Hollywood "show business" area, the "beatnik" beach areas, and the West Los Angeles campus area.

If these side effects are serious, may there not be many more reactions -- serious or not -- in persons never brought to medical or psychiatric attention? This is difficult to answer because there are no data on numbers of users of LSD or frequency of use. However, we have seen the effects of LSD taken in the community at gatherings and parties. We have seen previously rational persons become suspicious and withdrawn, with grimacing and inappropriate affect. We have seen them look around the room (apparently hallucinating), exhibit motor restlessness, and approach becoming combative. These effects apparently wore off after a few hours. The persons never went to a psychiatric or emergency facility, yet to all appearances they were psychotic. We have also seen others whose behavior did not change at all after ingestion of the drug.

Our findings seem to contradict such statements in the literature as "We believe that . . . the actual incidence of serious complications following LSD administration is . . . infrequent. It is surprising that such a profound psychological experience leaves adverse residuals so rarely."

We share those concerns voiced by both professional persons and laymen about the current status of LSD in the community, aptly called "the LSD controversy".

THE PROBLEMS OF LSD^{25} AND EMOTIONAL DISORDER[1]

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

Over the past year in the United States a new problem has arisen -- that of abuse of LSD (lysergic acid diathylamide). The problem seemed to develop rather suddenly in the late summer of 1966 as increasing numbers of persons began to arrive at psychiatric clinics and medical emergency rooms throughout the country with symptoms following LSD ingestion. This occurred at about the same time that the mass media were publicizing LSD -- unfortunately often in a seductive, alluring way -- as a panacea for man's problems. LSD has been alleged to help architects build better buildings and to enhance creativity in art and in music. It has been publicized as an answer to a variety of sexual problems and problems of living in general, as well as a revolutionizer in the treatment of mental illness.

Then, as the dangers of this drug became recognized, first in Southern California and in New York City, and then throughout the country, particularly on college campuses, a wave of hysteria began to sweep the nation. Federal laws passed early in 1965 making possession of LSD for sale or manufacture illegal (The Drug Abuse Control Amendments of 1965) did not stem the tide. The one legal manufacturer of the drug, Sandoz Laboratories, stopped the production of LSD in May of 1966.

This atmosphere of hysteria continues to pervade the entire LSD problem. Literature has appeared which blames LSD on the Communists and everyone seems to have his own theory on what should be done. In October of 1966, California (along with two other states) made even the possession of this drug illegal. In the meantime, much research into the LSD problems and potentials is being discontinued. Little is really known yet about LSD.

Historical Factors

Lysergic acid diethylamide tartrate (LSD^{25})[2] was synthesized in 1938 by a Swiss scientist named Hofmann. He recognized its perception-altering properties in 1943. Lysergic acid, the precursor of LSD, is a constituent of ergot, a fungus that grows on rye. The drug is related to psilocybin, the active alkaloid of the Mexican mushroom, and to mescaline which is found in the peyote cactus buttons, except that it is many times stronger than these "hallucinogens". Morning glory seeds also contain LSD-like compounds, although in milder form.

---

[1] Condensed from California Medicine, January, 1967.

[2] Commonly known as LSD, or by users as acid or L.

Man has used drugs which change the state of consciousness for thousands of years. Cannabis (Indian hemp) was brought to Europe in 1500 B.C. from Asia, and to the United States in 1920 as marijuana. Psilocybin and peyote were used by the Aztec Indians in Mexico centuries ago.

The use of LSD was first mainly limited to the upper middle classes, professionals and intellectuals, but gradually its usage has spread from colleges to high schools to junior high schools, and now to lower income groups.

The term psychedelic, or "mind-manifesting", was coined by Osmond in 1957.

Physiologic Effects

Physiologically, LSD has few effects. It is readily absorbed from the intestinal tract. Thus there is little advantage in intravenous injection of the drug, although occasionally a user will try injecting it for a change.

The pupils are dilated and LSD users often wear sun-glasses, even at night, to combat photophobia. Recently grand mal seizures were observed in a previously non-epileptic person following ingestion of LSD.

The drug is not physiologically addicting in that there are no withdrawal symptoms following discontinuation. However, it is phsychically addicting in that after taking it the user frequently becomes convinced that he wants to keep taking it.

Tolerance to LSD develops rapidly; thus users rarely regularly take LSD more than twice weekly. There is no lethal dosage known in humans.

Psychologic Effects

Sensations become intensified and perceptions are distorted under LSD. One man slept on the floor the night he took LSD because he was sure his bed was only two inches long. Illusory phenomena are common. Another man was restrained from diving off a cliff onto the rocks and the ocean below. Later he explained that he felt the breaking waves were a silk scarf and he wanted to dive into it. Faces often appear to be melting. One high school student cut all the flexor tendons in her wrist when she looked in the mirror and saw her face begin to dissolve. Time sense is especially distorted. We have seen persons under the influence of LSD stare at their fingers or at a leaf for hours. True hallucinations, predominantly visual, also occur.

Delusions are not infrequent. We treated, in crisis intervention, a young man who became convinced, a few hours after ingesting LSD for the first time, that he had to offer a human sacrifice, that is, kill someone, or die himself. He was prevented from throwing his girl friend off the roof of a Hollywood hotel.

Mode and Site of Action

Neither the mode nor the site of action of LSD is definitely known.

Three Areas of Research

There have been three main approaches in the work on LSD to date. The first has to do with the controlled administration of a known amount of LSD experimentally, following the screening of subjects by psychiatric interviews and/or psychological testing. Resultant subjective and/or objective effects of the drug are then recorded in this "experimental" study of LSD.

The evaluation of creativity under LSD is extremely difficult. If an artist paints a picture while on LSD it may be rejected by the public and also by Art critics and yet it could conceivably be a creative work. Perhaps this reservation also applies when the artist himself (as was once our experience) later terms his artistic effort under LSD "just chicken scratches". But certainly many persons do feel that they are more creative under LSD.

The second type of approach with LSD has to do with its therapeutic effectiveness. It has been used for alcoholics to help them stop drinking. It has been used in patients dying of cancer to alleviate the pain and help them die a more "dignified" death. It has been used as a psychotherapeutic aid in general to increase insight. More extensive claims have been made for LSD, and it has been cited as a specific cure for frigidity, impotence and homosexuality.

It is difficult, but essential, to evaluate just what therapeutic efficacy LSD does possess. Extravagant claims and total disclaimers now vie in an atmosphere of hysteria. For an experiment to be valid, it should be possible to reproduce the results. This has not yet been convincingly done in the therapeutic approach to LSD, in our opinion.

The third approach to LSD has to do with observation of the side effects which occur following the ingestion of the drug. There are both acute and chronic side effects, and their occurrence cannot be predicted. Psychiatric interviews and psychological testing do not screen out adverse reactors. Some of the worst reactions have been in persons, often physicians and other professionals, who appeared stable by every indicator. Conversely, others who have had past histories of severe psychiatric problems and have been leading marginal existences have seemed to tolerate LSD without ill effect.

There is some work to show that persons who place a premium on self control, planning, caution and impulse restriction, and who sacrifice spontaneity, do particularly poorly on LSD.

Acute Side Effects

Four major types of acute symptoms have been seen. These include, in decreasing frequency, hallucinations (both auditory and visual), anxiety to the point of panic, severe depression with suicidal thoughts or attempts, and confusion. These symptoms may occur in patients who have taken the drug once or 60 times. They occur in persons who have only taken LSD as well as in persons who are chronic multiple drug abusers.

Treatment of the acute symptoms first must be directed toward preventing the patient from physically harming himself or others. Thus the frequent indication for psychiatric hospitalization. It is important for the therapist not to increase the patient's anxiety by being anxious himself. One patient panicked when he called a center for crisis intervention and was told by the therapist on call that he had "just caused permanent irreversible brain damage" to himself by taking LSD.

Chemical agents are also a vital part of the treatment regime. Chlorpromazine (Thorazine), a major tranquilizer, is the most frequently effective antagonist to LSD's effects. It is important to note that recurrences of the acute side effects from LSD in all their original intensity often appear up to a year after the ingestion, without further ingestion of the drug and regardless of set or setting.

Chronic Side Effects

Certain chronic changes have been noted among LSD users. While the authors' initial observations were drawn from patients who had been put in hospital, we have also had the opportunity to observe large numbers of persons in the community who have taken LSD. Many had had bad experiences but had not seen a physician or gone to a hospital.

We have observed the ingestion of LSD by individuals and by groups of from two to three to 50 or 60 persons. We have seen it taken indoors and also in scenic surroundings, at "kick-type" Hollywood parties and at quiet religious gatherings, and from Orange County to San Francisco.

An effect of LSD that has been noticed quite frequently and is particularly striking to us is a dramatic shift in one's value systems. Many persons after using LSD are no longer interested in working or playing what they call the "ego games" of society. LSD users often leave their families and become quite withdrawn, devoting most of their time to thinking, writing and talking about LSD.

Another chronic difficulty with LSD is what we would term "perceptual distortion". This refers to a subjective feeling of improvement concomitant with an objective loss of functioning. For example, a band leader phoned us because his drummer was producing such terrible music. He was so out of tune and rhythm that patrons were unable to dance to the band's music. Nevertheless, when we interviewed the drummer, he told us that he felt he was playing "like Gene Krupa", and was more than satisfied with his music.

Unfortunatley, the idea of LSD seems to have particular attraction for the adolescent. Most adolescents are struggling with feelings of anger and sexuality -- along with the need to establish an identity, and many of them see LSD as offering a "magic solution" for these struggles. But many times the adolescent is so overwhelmed by the LSD experience that his search for identity becomes a florid, psychotic nightmare. There is probably no other period in our lives more loaded with conflict than adolescence. Yet, it is persons of this very age group that, by virtue of their struggles, are the most attracted to the magic promises of LSD. This is one of the truly great dangers of the drug.

The ability to love, that is to have psychic intimacy with another person, seems also to be decreased by LSD. In contradiction to the claims that the drug helps one to get closer to other people, we have noticed that users become more introspective and invested in themselves. Several LSD sessions that we have attended were filled with excited individuals proclaiming their feeling of being especially close to various other people in the room. Nevertheless, we were impressed with the number of monologues that were taking place at the sessions. Very few of the participants were at all interested in or relating to others.

Another disturbing aspect of the use of LSD is the missionary quality that develops in many of its users. Many LSD users are so affected by the drug that it becomes impossible for them to be objective when discussing its effects. There is a great deal of proselytizing and insistence on the part of users that other persons must share the same kind of subjective awareness that they experience. We have no doubt that this is a sincere conviction on the part of many LSD users, since in our research we have seen mothers who have given LSD to their infants, brothers who encourage their sisters to take LSD, and individuals who have taken their life's savings and purchased LSD in order to distribute it gratis to complete strangers. Despite all these chronic personality and behavioral changes. organic brain damage has not yet been demonstrated in humans.

The "Trip" Itself

Users of LSD call themselves "acid heads", and the LSD experience itself is a "trip". (The signs on cars which read "Consult Your Local Travel Agent" refer to the LSD trip.) Many users prefer to have their experience out of doors, particularly by the ocean or a lake, or in the mountains or woods, or in the desert. They usually ingest what has been sold to them as anywhere from 100 to 250 micrograms of LSD, although the amount and purity of the substance is questionable because of its black market source. It is available at anywhere from 50 cents to 10 dollars.

Users usually like to hear music (particularly played by performers like Ravi Shanker) and to see intense colors (witness the rash of "light shows" and the use of strobe lights) while they have their LSD experience. They often read, especially from the Tibetan Book of the Dead, although often silently. Many chronic users have developed "aids" to help them reverse any bad effects -- often reassuring phrases from various psychedelic books. (We have seen a number of users whose aids did not help.) One hundred to 250 micrograms is the usual dosage for an LSD experience although a number of users claim to have ingested 2,000 micrograms daily for a period of weeks.

A great deal has been written about "set" and setting. The set or attitude with which one approaches the LSD experience is extremely important, as with hypnosis. In fact, people are now taking trips without drugs. However, set does not completely determine the type of "trip". For, other experiments have recorded subjects who expected psychotic reactions from LSD but experienced only pleasant feelings of relaxation.

Persons given LSD without their knowledge are extremely liable to become panicky and have a severe reaction. However, it is not usual for LSD to be secretly placed in punch or any other liquid. The user wants people to take LSD, but to know that they are taking it. We have seen persons who have taken LSD in what they consider an ideal setting (with one or two good friends, with a guide or "sitter", with soft music playing, and in a relaxed environment) who still had bad experiences.

Epilogue

Until more is known about the short- and long-term effects of LSD as well as how to predict who will have a bad experience, it must be considered a very dangerous drug.

Note: Recent experiments in which animals were given LSD, and then their brains examined by microscope, showed definite brain damage.

GRAND MAL SEIZURES FOLLOWING INGESTION OF LSD^{25}[1]

Duke D. Fisher, M.D.
J. Thomas Ungerleider, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

Various untoward reactions to lysergic acid diethylamide tartrate (LSD^{25}) have been recorded in the psychiatric literature. The authors have themselves observed chronic psychiatric complications in patients following ingestion of the drug. In the case here reported the patient had no adverse psychiatric side effects from LSD but had two grand mal seizures after using the drug. So far as we could determine, there have been no previous reports in the literature of clinical seizures following LSD ingestion, although there have been several general allusions to the subject.

Report of a Case

The patient was a 32-year-old Caucasian man, a graduate student in anthropology who worked as a night watchman for a film studio. He had ingested LSD for the first time approximately five months before he entered the UCLA Neurology Clinic for investigation of grand mal seizures. He said he believed he had taken 450 mcg on that first occasion, but since the LSD was illicitly obtained he could not be sure of the dosage. Approximately 30 minutes after ingesting the drug, the patient noticed hallucinations of color, feelings of unreality and preoccupation with detail. Approximately 50 minutes after ingestion, he had a grand mal seizure which included tonic and clonic movements, unconsciousness and urinary incontinence, all observed by the patient's LSD "sitter," a clinical psychologist. The patient recalled being confused and disoriented for approximately 2 hours after the seizure. The remainder of the LSD experience persisted for approximately 12 hours without further seizure activity. Afterward the patient noticed pain in the back, and x-ray films taken later in the emergency room of UCLA Center showed fractures of the fifth and seventh thoracic vertebrae.

The patient had four subsequent LSD sessions, using an undetermined amount of LSD, with no seizures. Approximately two months before he was observed in the Neurology Clinic, he took LSD for the sixth time and had another grand mal seizure in the presence of two friends. Concerned that he might have seizures without using LSD, he referred himself to the UCLA Neurology Clinic.

There was no history of previous seizure activity or of birth trauma, recent infectious disease or head injury. Nor was there family history of seizures. Except for the intermittent use of marijuana, the patient said he had not used drugs other than LSD.

---

[1] California Medicine, March, 1967.

Results of general physical and neurological examinations were entirely within normal limits. On examination of mental status the patient was noted to be quite anxious, without evidence of any psychotic material. There was no persistent LSD psychosis, severe depression, recurring hallucinations or delusions. The patient had identified with the "acid head culture" and was quite preoccupied with LSD, which he described as his religion.

An electroencephalogram was within normal limits. Lumbar puncture was performed; opening pressure was 160 mm of water and the fluid was clear and colorless. Closing pressure was 130 mm. Colloidal gold, protein, sugar and cells were all found to be within normal limits. Blood creatinine and fasting blood sugar were normal, as were complete hemogram and urinalysis.

Diphenylhydantoin sodium (Dilantin), 100 mg. three times a day was prescribed and in a one month follow-up there were no seizures. The patient then stopped taking Dilantin and at last report no further seizures had occurred. However, it should be noted that the patient had not taken LSD since the occurrence of the seizure, several months before, that had caused him to seek medical consultation.

Discussion

Although this appears to be the first reported case of grand mal seizures associated with ingestion of LSD, it should be noted that many persons with complications of LSD are not seen by physicians or do not go to hospitals. The mechanism by which LSD produced the seizure activity is not known. The drug may have reduced the seizure threshold.

With the continued widespread use of LSD, physicians should be alert to the possibility of yet another side effect from this very controversial drug.

Summary

A man who had no past history of such occurrences had two grand mal seizures after oral ingestion of LSD. Subsequent neurological and electroencephalographic evaluation showed no abnormalities. Dilantin was prescribed and when at the end of a month no further seizures had occurred, the patient stopped taking the drug. He had not taken LSD since he had the seizure that caused him to seek medical advice.

LSD: FACT AND FANTASY[1]

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

It is unfortunate that the article about LSD appearing in the August issue of Progressive Architecture did not limit itself to the initially stated purpose. If it had merely reported, on the basis of interviews with several architects who had taken LSD, these architects' opinions as to changes in their own creativity there would be little to dispute in the article. Instead, the authors have presented a seductive, misleading and often frankly erroneous picture of the effects of this drug. Thus we are writing this article to present another side of the picture of LSD, one based on our observations. We would like particularly to focus upon the dangers of LSD and correct some of the inaccuracies and distortions in the P/A article.

Although LSD was first synthesized in 1938, its widespread use has occurred only within the past year-and-a-half here in the United States. The problem first came to our attention in September, 1965, when increasing numbers of persons began to present themselves at psychiatric clinics and medical emergency rooms throughout the country seeking help following LSD ingestion. This was at about the same time that the mass media was publicizing LSD, often presenting it as a drug which enhances creativity in art and music, as well as in architecture, and as an answer to a variety of sexual problems and problems of living in general. In short, a panacea.

LSD has been called a "consciousness-expanding" drug while it is, in fact, quite the reverse. The drug decreases one's ability to select and pay attention: thus it decreases conscious functions. Sensations do become intensified following LSD. Perception, however, is not enhanced, and visual/auditory acuity and general awareness are not "revolutionalized" but rather are distorted, contrary to P/A's claims. To state that the LSD taker "sees" for the first time as children must see is as grossly fallacious as was the original assumption that the LSD-induced "model psychosis" was like that of schizophrenia.

Thus the idea that an architect can take a drug, enter the world of the mentally ill (a catch-all phrase which includes many diverse disease entities and even more diverse personalities) and then be able to design a hospital which is less frightening and confusing to patients is an unsupported bit of chimera.

The LSD user often feels that he has heightened perceptual powers but they are actually distorted. Illusory phenomena are common. For example, one man slept on the floor the night he took LSD because he was sure his bed was only two-inches long. Another man was restrained from diving off a cliff onto the rocks and the ocean below. Later he explained that he felt the breaking waves were a silk scarf and he wanted to dive onto it. Faces often appear to be melting. One high school student cut all the flexor tendons in her wrist when she looked in the mirror and saw her face begin to dissolve. Time sense is especially distorted. We have seen persons under the influence of LSD stare at their finger or a leaf for hours. Delusions are not infrequent. We saw, in crisis intervention, a young man who became convinced a few hours after his first ingestion of LSD that he had to offer a human sacrifice (i.e., kill someone), or die himself. He attempted to throw his girl friend off the roof of a Hollywood hotel.

---

[1] Arts & Architecture, Vol. 83, No. 11, December, 1966, pp. 18-20.

The entire sections in the P/A article on "The Dangers of LSD" and "The Medical Evidence" are masterpieces of distortion. There are severe side effects from LSD, both acute and chronic in nature, and their occurrence *cannot* be predicted. Psychiatric interviews and psychological testing *cannot* screen out adverse reactors. Some of the worst reactions have been in persons, often professionals, who appeared stable by every indicator. Conversely, others who have had past histories of severe psychiatric problems and have been living marginal existences seemed to tolerate LSD without ill effect. One of the sources quoted by P/A (apparently endorsing LSD as a safe agent), Dr. Sidney Cohen, now writes (1966), "During the past 3 years I have seen so many and such varied difficulties arise in connection with the indiscriminate use of LSD that each kind of complication can hardly be mentioned here. . . . My experience has not been unique. Substantiating reports are forthcoming from neuropsychiatric hospitals, student health centers and coroner's offices."

Another blatant distortion in the article is the implication that it is LSD *overdosage* which causes the reactions of fear, panic and psychosis. This is absolutely untrue. We have seen persons have extremely bad experiences on dosages of under 100 micrograms (the usual dose is 100-250 micrograms) and others have none at all from 2000 micrograms daily for several weeks. It should be emphasized, however, that since Sandoz Laboratories, the only legitimate manufacturer of LSD, stopped production last spring because of the wave of LSD hysteria, the only available source of this drug has been the black market. These supplies often contain impurities, and sometimes substitute compounds like belladonna which also causes hallucinations but, unlike LSD, can result in fatality from overdose. Of the two black market LSD samples we have had analyzed, one contained 100 micrograms -- the purchaser paid for 250 micrograms -- and the other contained no LSD at all.

In addition, and again contrary to the "minimal risks" reported by P/A, we have seen many persons have serious long-lasting side effects from their LSD use, despite their alleged ideal *setting* (friendly, warm and relaxed) and *set* (a comfortable mental attitude) plus an experienced "guide" in attendance.

Once again contrary to P/A, multiple untoward reactions are now being reported even when LSD is used experimentally in the treatment of alcoholism, psychoneuroses and for terminal cancer patients (to help this latter group die a more dignified death). We say "experimentally" because none of these therapeutic claims for LSD have yet been substantiated and considerable doubt has been cast on the earlier research. This, of course, also includes the wildly extravagant claims made for LSD with all sorts of sexual problems like frigidity, impotence and homosexuality.

Acute Effects: In August of this year, the same month that the article in P/A appeared, we reported in the Journal of the American Medical Association that an initial group of 70 persons with serious side effects associated with LSD ingestion were seen at our psychiatric facility at the UCLA Medical Center. These persons suffered from hallucinations, anxiety to the point of panic, depression with suicidal thoughts and/or attempts, and confusion. For each of the 70 patients who came to the center we received an additional three or four telephone calls from other people with complications from LSD who did not subsequently come to the hospital. Other hospitals in this and many other areas are now reporting similar experiences. Since the publication of our article we have received letters from laymen and professionals throughout the country citing further instances of severe side effects from LSD. These were not people who took the drug only -- or even primarily -- in an experimental situation, but in relaxed settings with good friends present. For many in our study group it was the first LSD experience. Others had had as many as 60 previous "good trips" on LSD. Often they had taken it with a "guide" present.

Many of these patients did not respond promptly to tranquilizer medication and some remained hospitalized for many months. Nineteen of our 25 hospitalized patients remained in the hospital for over one month.

The state hospitals in our area are also now reporting increased frequencies of "LSD patients" admitted to their facilities. Many such patients functioned well before their LSD adventures without a sign of even borderline emotional illness. This is in contrast to P/A's implication that the United States Senate Subcommittee felt, after examining Bellevue Hospital's records, that LSD side-effects primarily occur in schizoid or otherwise emotionally disturbed persons.

This type of distortion is particularly misleading to that group of persons most likely to be influenced by such claims -- the teen-ager. To quote from our testimony to the same Senate Subcommittee on Narcotics last May, "We believe LSD usage to be very widespread . . . particularly among younger persons . . . particularly in colleges, high schools and even in junior high schools. . . . There is no other period in our lives more loaded with conflict than adolescence. Yet this is the very age group that is the most attracted to the magic promises of LSD. Tragically, the adolescent's search for identity with LSD so often becomes a florid, psychotic nightmare."

There have been many more suicides and accidental deaths from LSD than the public realizes. For example, one youth blissfully walked onto a freeway, "merged" with an oncoming car and was killed. Just this past month we have heard about two teenagers who felt that LSD was so wonderful that they themselves were not worthy of living in the same world where LSD existed; they both left suicide notes and killed themselves.

Chronic Effects: There are a number of chronic effects which we have observed in LSD users, many of whom have not come into psychiatric or medical settings. Some of these chronic changes among LSD users may be experienced after as little as one dose. It is these changes, which we will describe, which may explain some of the extravagant claims for LSD as an enhancer of creativity, sexual potency, artistic potential, personality improvement, etc.

One notable chronic effect of LSD we term "perceptual distortion". This refers to a subjective feeling of improvement concomitant with an objective loss of functioning. For example a band leader phoned us because his drummer was playing so badly out of rhythm that patrons were unable to dance to the band's music. Nevertheless, when we interviewed the drummer, who was taking LSD regularly, he told us that he felt he was playing "like Gene Krupa" and was more than satisfied with his music. A group of LSD users whom we studied fairly intensively over a several month period were convinced that they could "pick up vibrations" from other people and that they could determine if someone else had used LSD merely by casual inspection. They showed no ability to point out LSD users and no extra sensory perceptivity. In fact, we found that they appeared to have actually suffered a loss of ability to discriminate and to observe. Thus one subjectively may feel that one is doing better but objectively one is not able to function as well.

This last inability is particularly important when evaluating that most difficult subject: creativity. Under LSD some artists have been convinced that they could paint better pictures while others have felt that they were just making "chicken scratches". Whether or not they were really more creative is difficult to assess. We particularly deplore those studies which set out to prove something positive from LSD, rather than to determine whether or not there are certain kinds of changes under the drug. For example, in one study, whose author was quoted in P/A, researchers were used who worked gratis, who may have taken LSD themselves, and were instructed to rate patients improved in personality characteristics after LSD if they were "more flexible" and demonstrated "less unrealistic rigidity". The bias or set of the researcher thus becomes very apparent.

Another long-range effect that we have seen frequently is a dramatic shift in value systems. Many people after using LSD are no longer interested in working or playing what they call the "ego games" of society. LSD users often leave their families and become quite withdrawn, devoting most of their time to thinking, writing and talking about LSD. They take Dr. Timothy Leary's admonition to "turn on, tune in and drop out" quite literally. We met one man at an LSD party who had spent the past two years wandering around the desert with a pack on his back, contemplating the wonders of nature and LSD. Three years ago he was an international lawyer in New York City. A law student confided that LSD had opened such horizons that he felt his legal studies were dull and boring by comparison. He speculated at length, while lying in his room during and between LSD trips, about the advisability of giving the world's leaders LSD so they would love, and not hate or make war.

In contradiction to the claims that the LSD helps one get closer to people, users usually become more introspective and invested in themselves. Several LSD sessions that we have attended were filled with excited individuals proclaiming that they felt especially close to various other people in the room and to people in general. Nevertheless, we were impressed with the number of monologues that were taking place at the sessions. Very few of the participants were at all interested in others.

In addition, LSD also seems to provide more primitive defenses against the normal anxiety and depression that most of us face. We have noticed many LSD users who developed a more primitive or psychotic way of handling their feelings. While many of us get angry, anxious or depressed when we encounter periods of stress, the LSD user often hallucinates, becomes paranoid or perceives people as caricatures. Users of LSD frequently experience the acute side effects after LSD, in their original intensity, as much as a year after using the drug without ever taking LSD again.

Another disturbing aspect of LSD usage is the missionary quality that many of its users develop. This was apparent in the P/A article. Often LSD users are so affected by the drug that it becomes impossible for them to be objective when discussing its effects. Unfortunately, this lack of objectivity has extended to some researchers in the field, researchers who are also LSD users. There is a great deal of proselytizing and insistence on the part of users that other people must share the same kind of subjective awareness that an individual using LSD experiences. We have no doubt that this is a sincere conviction, since in our research we have seen mothers who have given LSD to their infants and individuals who have taken their life savings and purchased LSD in order to distribute it free to complete strangers.

Although the architects cited in P/A claim to be more creative, the implication in the article was that it was the LSD and not their own creativity, despite brief and unconvincing disclaimers to the contrary. Man has always looked for the easy way to Eldorado and Nirvana, an attitude particularly apparent in P/A's architects as witness the following statements:

a) "My new awareness . . . would not have been achieved in almost an instantaneous fashion without the aid of LSD."

b) "My experience during the session was an unbelievable increase in ability to concentrate and to make decisions . . . anything was possible . . . three designs were outlined in 3 hours."

c) "Almost immediately several relationships that had escaped my attention became apparent and a solution . . . followed soon after . . . I would guess that 20 minutes had elapsed. Quite normally I would stew and fret for weeks before coming to such a solution."

In reply we might mention the engineer who entertained us in his home and assured us that solutions to the most complicated and heretofore insoluble problems had become readily apparent to him since he had begun to use LSD weekly. He also informed us that he had been out of work for months as no company appreciated his recently acquired, extraordinary abilities.

We conclude with a comment by Dr. Sidney Cohen: "Artistic inspiration can only be executed by one who has already mastered the technique of the medium. The drive to achieve is another requisite for creative accomplishment. LSD will reduce motivation as often as it will intensify it."

A MEDICAL LOOK AT THE FACTS AND FANTASIES[1]

J. Thomas Ungerleider, M.D.
Department of Psychiatry
UCLA Center for the Health Sciences
Los Angeles, California

It's been a long time since P. T. Barnum remarked, "There's a sucker born every minute."

But today, instead of the Brooklyn Bridge, they're selling instant happiness, creativity and a new kind of "normality" -- all in a pill.

It's called LSD (Technically, lysergic acid diethylamide).

Over the past year, however, it became apparent the LSD train to Nirvana, Eldorado, and the Fountain of Youth was jumping its tracks.

The problem seemed to develop rather suddenly in the late summer of 1965 as increasing numbers of persons arrived at psychiatric clinics and medical emergency rooms with symptoms following LSD ingestion.

At about the same time the mass media were publicizing LSD -- unfortunately often in a seductive alluring way -- as a panacea for man's problems.

As the dangers of this drug became recognized, a wave of hysteria began to sweep the nation. Federal laws passed early in 1965 making possession of LSD for sale or manufacture illegal did not stem the tide.

This atmosphere of hysteria continues to pervade the entire LSD problem. Literature has appeared which blames LSD on the Communists, and everyone seems to have his own theory on what should be done. In October of 1966, California (along with two other states) made even possession of this drug illegal. So, meantime, much research into LSD's problems and potentials is being discontinued. Little is really known yet about LSD.

It is known, however, that there are both acute and chronic side effects, and that their occurrence cannot be predicted. Psychiatric interviews and psychological testing do not screen out adverse reactors. Some of the worst reactions have been in persons, often physicians and other professionals, who appeared stable by every indicator.

Conversely, others who have had past histories of severe psychiatric problems and have been leading marginal existences have seemed to tolerate LSD without ill effect.

Four major types of acute symptoms have been seen. These include -- in decreasing frequency -- hallucinations, anxiety to the point of panic, severe depression with suicidal thoughts or attempts, and confusion. These symptoms may occur in patients who have taken the drug once or 60 times. They occur in persons who have only taken LSD as well as multiple drug abusers.

---

[1] California Living, The San Francisco Examiner, April 23, 1967.

Certain chronic changes have been noted among LSD users. While the authors' initial observations were drawn from patients in hospital, we also observed large numbers of persons who have taken LSD. Many had bad experiences but had not seen a physician or gone to a hospital.

We have observed the ingestion of LSD by individuals and by groups of from two or three to 50 or 60 persons. We have seen it taken indoors and also in scenic surroundings, at "kick-type" Hollywood parties and at quiet religious gatherings, and from Orange County to San Francisco.

An effect of LSD that has been noticed frequently and is particularly striking to us is a dramatic shift in one's value systems. Many persons after using LSD are no longer interested in working, or playing what they call the "ego games" of society. LSD users often leave their families and become quite withdrawn, devoting most of their time to thinking, writing and talking about LSD.

Another chronic difficulty with LSD is what we term "perceptual distortion". This refers to a subjective feeling of improvement concomitant with an objective loss of functioning. For example, a band leader phoned us because his drummer was producing such terrible music. He was so out of tune and rhythm that patrons were unable to dance to the band's music. Nevertheless, when we interviewed the drummer he felt he was playing "like Gene Krupa", and was more than satisfied with his music.

Unfortunately, the idea of LSD seems to have a particular attraction for the adolescent. Most adolescents are struggling with feelings of anger and sexuality -- along with a need to establish an identity, and many of them see LSD as offering a "magic solution" for these struggles.

But many times the adolescent is so overwhelmed by the LSD experience that his search for identity becomes a florid, psychotic nightmare. There is probably no other period in our lives more loaded with conflict than adolescence. Yet, it is persons of this very age group that, by virtue of their struggles, are most attracted to the magic promises of LSD. This is one of the truly great dangers of the drug.

The ability to love, to have psychic intimacy with other persons, seems also to be decreased by LSD. In contradiction to the claims that the drug helps one to get closer to other people, we have noticed that users become more introspective and invested in themselves.

Several LSD sessions we have attended were filled with excited individuals proclaiming their feeling of being especially close to various other people in the room. Nevertheless, we were impressed with the number of monologues taking place. Very few participants were at all interested in or relating to others.

Another disturbing aspect of the use of LSD is the missionary quality that develops in many users. Many LSD users are so affected by the drug it becomes impossible for them to be objective when discussing its effects. There is a great deal of proselyting and insistence on the part of users that other persons must share the same kind of subjective awareness that they experience.

We have no doubt this is a sincere conviction on the part of many LSD users, since in our research we have seen mothers who have given LSD to their infants, brothers who encourage their sisters to take LSD, and individuals who have taken their life's savings and purchased LSD in order to distribute it gratis to complete strangers.

Despite all these chronic personality and behavioral changes, organic brain damage has not yet been demonstrated in humans.

Users of LSD call themselves "acid heads", and the LSD experience itself is a "trip". (The signs on cars which read "Consult Your Local Travel Agent" refer to the LSD trip.) Many users prefer to have their experience out of doors, particularly by the ocean or a lake, or in the mountains or woods, or in the desert. They usually ingest what has been sold to them as anywhere from 100 to 250 micrograms of LSD, although the amount and purity is questionable because of the black-market source. It is available at anywhere from 50 cents to $10.

Users usually like to hear music and to see intense colors (witness the rash of "light shows" and the use of strobe lights) while they have their LSD experience. They often read, especially from the Tibetan Book of the Dead, although often silently. Many chronic users have developed "aids" to help them reverse any bad effects -- often reassuring phrases from various psychedelic books. (We have seen a number of users whose aids did not help.)

A great deal has been written about "set" and setting. The set or attitude with which one approaches the LSD experience is extremely important, as with hypnosis. In fact, people are now taking trips without drugs. However, set does not completely determine the type of "trip". Experiments have recorded subjects who expected psychotic reactions from LSD but experienced only pleasant feelings of relaxation.

Persons given LSD without their knowledge are extremely liable to become panicky and have a severe reaction. However, it is not usual for LSD to be secretly placed in punch or any other liquid. The user wants people to take LSD, but to know that they are taking it. We have seen persons who have taken LSD in what they consider an ideal setting (with one or two friends, with a guide or "sitter", with soft music playing, and in a relaxed environment) who still had bad experiences.

Until more is known about the short- and long-term effects of LSD as well as how to predict who will have a bad experience, it must be considered a very dangerous drug.

"THE BAD TRIP" - THE ETIOLOGY OF THE ADVERSE LSD REACTION

J. Thomas Ungerleider, M.D.
Duke D. Fisher, M.D.
Marielle Fuller
Alex Caldwell, Ph.D.
Department of Psychiatry
University of California, Los Angeles
Center for the Health Sciences

Introduction

Since approximately the fall of 1965 the incidence of adverse LSD reactions throughout the country has mushroomed. At the UCLA Neuropsychiatric Institute prior to September, 1965, one problem case associated with LSD ingestion was seen approximately every two months. Beginning at that time the incidence increased gradually from five to twenty cases a month with three to five telephone calls being received, for every person seen, from other persons in trouble from LSD who were not subsequently seen. Other hospitals throughout the country have reported a similar increase. The demographic characteristics of the first 70 such patients seen at UCLA have previously been reported.[1] These patients came most often with hallucinations, followed by anxiety to the point of panic, by depression -- often with suicidal thoughts or attempts, and by confusion.

The question has thus been raised as to why these persons should have experienced difficulty from LSD when others claim to take the drug regularly and apparently have no adverse effects. A number of pertinent additional questions are then raised. First of all how do we know the persons who get in trouble from alleged use of LSD are really taking LSD? Since Sandoz Laboratories, the one legitimate manufacturer, discontinued production, all LSD that is available is blackmarket, with all the impurities and dosage confusion that is attendant upon such illegal supply. Secondly, how do we know that those persons who have difficulty from LSD were not _already_ emotionally disturbed? (In the original study 37 percent had had psychiatric care previously and 33 percent were unemployed, which were perhaps gross indices of mental health.)

There is no chemical test for LSD once it is inside the body and no pathognomonic signs or symptoms on which to make the diagnosis. Thus how do we know who is on LSD at all, including our subjects and patients? Although most typically passive, the LSD user may present with almost any kind of behavior. However, beyond the history of LSD ingestion,

---

1. Ungerleider, J.T., Fisher, D.D., and Fuller, M.: "The Dangers of LSD," _J.A.M.A._, 197: 389-392, 1966 (Aug. 8).

there are no unique features although dilated pupils along with the peculiar "I feel sorry for you non-users" smile are characteristic.

LSD users describe the perceptual changes following drug ingestion in intense and often characteristic ways. When one hears about visual and auditory "unfolding" of nature it is typical of LSD and other psychedelics alone. In addition, the most common side effects reported by these subjects were consistent with those described elsewhere following experimental administration of LSD.[2,3] We had several drug samples spot checked for LSD content. Although the user always overestimated the amount of LSD in his sample, all did contain LSD.[4]

The entire issue of predictability for the adverse LSD reaction is unsettled. This is particularly cogent in view of the fact that some researchers have advocated the use of LSD not only experimentally but in clinics where "creative and normal" persons could receive the drug in order to create a psychedelic experience for them. This study is a preliminary attempt to try to assess some of the factors in the etiology of the "Bad Trip", the adverse LSD reaction.

Methodology

Of the previous 70 patients reported upon, 25 were hospitalized and the rest were treated as outpatients. This group of 25 inpatients, hospitalized following adverse LSD reactions, are compared in this study with 25 other frequent LSD users who reported no difficulties from the drug. This latter comparison group claimed to have ingested the drug in doses of from 250 to 1200 mcg. from once to three times a week for up to 18 months. It should be emphasized that these 25 subjects were part of an existing "religious" group who took their LSD together.

We initially made contact with this group when one of their members sought us out following a lecture which two of the authors (JTU & DDF) were giving on the LSD situation to a community service organization in a suburb of Los Angeles. The member had initially tried to read a statement advocating unlimited use of LSD during a question and answer session following the lecture. Afterwards, he approached us and insisted that there were many persons who were taking the drug without difficulty. They had formed a group, to be referred to as the "Disciples", which consisted of 100 regulars with as many as 500 total

---

[2] Cole, J.O., and Katz, M.K.: "The Psychotomimetic Drugs: An Overview," Chapter 13 in Solomon, D. LSD The Consciousness Expanding Drug, G.P. Putnam's Sons, N.Y., 1964.

[3] Cohen, S.: "LSD: Side Effects and Complications," J. Nerv. Ment. Dis., 130: 30-40: 1960.

[4] Ungerleider, J.T., and Fisher, D.D.: "The Problems of LSD and Emotional Disorders," Calif. Med., 106: 49-55: 1967 (January).

members who met regularly and took LSD. This was before possession of LSD was made illegal in California. After we agreed to observe the group, we were "screened" by five members at the Los Angeles Airport. They were satisfied that we were not law enforcement officials and we were invited to observe some of their LSD "happenings".

Numerous subsequent visits were made down to the headquarters of the "Disciples". This was located in a suburb of Los Angeles where about a dozen of the group were living in a large house on spacious grounds. They were literally tilling the soil and had decorated the house in psychedelic fashion. There were pictures of Buddha and Jesus on the walls. Every Wednesday night the group gathered to have a non-LSD religious experience consisting of prayer and meditation. The drug taking sessions were scheduled for the weekends. The group did not go along with the "drop out" part of the "Turn on, Tune in, and Drop out" that Dr. Timothy Leary advocates. They claimed to be working, making money and to have rehabilitated themselves. Most of the members of the group said that they were ex-criminals and "drug" addicts who were now finding a new and useful life through LSD.

After we observed a number of their "love sessions" and all day LSD experiences, the group agreed to psychiatric interviews including mental status examinations and the Minnesota Multiphasic Personality Inventory (MMPI). We examined the first 25 who were available on one weekend. We then compared these data to corresponding data from the 25 hospitalized patients.

Results

1) There were no significant differences in race, sex or age between the two groups. Both groups had comparable amounts of early parental deprivation.[5] Both groups resided predominantly in the Los Angeles area.

2) There was a highly significant difference (p. less than .001) in marital status between the two groups. No inpatients were married at the time of admission to the hospital (84 percent of the inpatients had never been married), versus 60 percent married (with 19 children) in the comparison group at the time they were examined (See Table 1).

3) Only 20 percent of the inpatients were earning a living at the time of admission while over 70 percent of the controls were working which was a highly significant difference (p. less than .01). The comparison subjects were mainly blue collar workers and their jobs included those of plumber, longshoreman, gas station attendant, grocery and drug store clerk, janitor, construction worker, truck loader, tractor mechanic,

---

5. (Separation from one or both parents for over six months before the age of 16.) Brill, N.Q., et al: Parental Loss in Adults with Emotional Disorders, Arch. Gen. Psychiat., 14: 307-314 (March) 1966.

aircraft plant worker, stockboy, gardener and surfboard renter. The average length of time working was three years for this comparison group (see Table 2).

4) Religion: We could not obtain religious information for the comparison group. They had formed a new religion, and they all denied having any previous religion or that their families even had any religion. In fact they repudiated orthodox religions totally until they "found God under LSD." Thirty-two percent of the inpatient group said they had no religion.

5) Police Records: Table 3 shows the histories of criminal behavior -- 64 percent of the comparison group had police histories. The major crimes that the comparison group had been involved in were forgery, stealing, carrying concealed weapons, manslaughter, grand theft auto, and aiding a fugitive. Disturbances of the peace, delinquency, minor fights and petty thefts were classified as minor crimes. Only 8 percent of the inpatient group gave histories of police records which was a significantly smaller proportion (p. less than .001).

6) Education: Fifty-six percent of the comparison group finished high school and an additional 16 percent had had some college education for a total of 72 percent who were at least high school graduates. The remaining 28 percent were high school dropouts. For the inpatient group 64 percent had finished high school, 32 percent were dropouts, and one patient was a high school student. This difference was not significant.

7) Previous Psychiatric History: Seventy-six percent of the comparison group had no previous psychiatric history (see Table 4). Sixteen percent had been in outpatient treatment and 8 percent had been inpatients. This is not significantly different from the 44 percent of the inpatient group who had had previous psychiatric care.

8) Drug History: Half of the inpatient group were taking only LSD at the time of admission and the other half were taking both LSD and marijuana or LSD and other drugs, in approximately equal numbers (see Table 5). The comparison group was taking either LSD alone (44 percent) or LSD and marijuana (56 percent). It was part of the Disciple's religion not to take other drugs. As for past drug history prior to six weeks before being seen in the Emergency Room, 40 percent of the inpatient group had taken only psychedelics. Twenty percent of the inpatient group had taken multiple kinds of drugs, excluding heroin, while 20 percent had used multiple drugs including heroin. Thus 40 percent were chronic multiple drug users. Twenty percent had never used any drugs in the remote past. In the comparison group in the remote past (before joining the "Disciples") 32 percent had taken only psychedelics, 44 percent were multiple drug users excluding heroin and 24 percent were multiple drug users including heroin. Thus 68 percent were chronic multiple drug users. It should be noted that none of these differences was statistically significant.

9) Diagnosis: The resident psychiatrists, as recorded in the hospital

charts, diagnosed forty percent of the inpatients psychotic, 28 percent neurotic, and diagnoses of character disorder, borderline psychotic, and multiple diagnoses accounted for 8 percent each (see Table 6). Four percent each were diagnosed as addict and adolescent adjustment reactions. We compared these diagnostic frequencies with a random sample of 95 other inpatients in the same hospital. The differences in frequency were small and appeared to be random; greater differences would occur by chance seven times in ten. No attempt was made to classify the comparison group diagnostically since so many were functioning without symptoms, were not in psychiatric treatment, and were working at the time they were seen. Their indices of psychosocial disturbance were: previous school trouble (28 percent dropped out of high school), police trouble (64 percent), past psychiatric history (24 percent had had previous outpatient or inpatient care), and past history of symptoms (one person admitted to hallucinations while on LSD and another person had had anxiety symptoms prior to but not after taking LSD). Eighty percent of the group claimed to have extrasensory perception when under LSD, but this was considered to be a part of their religious beliefs and not truly delusional.

We did however assess psychopathology on the mental status examination (for the comparison group) and by the MMPI (for both groups). On mental status examinations two comparison subjects showed a clinical concreteness in their interpretations of proverbs and one subject could not subtract 7's or 3's serially. The latter subject subsequently volunteered that he had been "out of my head with pot" at the time of the examination and then did the subtractions correctly. One of the subjects who was unable to abstract stated that he often could not think straight since he had begun to take LSD but he had held his job as mechanic for 18 months without difficulty. He had never seen a psychiatrist, but had been arrested several years previously for drunk driving. His MMPI revealed a definite personality disorder associated with passive-aggressive, antisocial, paranoid and sexually deviant trends.

The other comparison subject who was unable to abstract proverbs was a 24-year-old married father of two who had no previous psychiatric history. He had been on marijuana, barbiturates and dexedrine before joining the religious group two months prior to the initial interviewing. He had a drug and theft police record and claimed to have had trouble talking (stammering) which was cured by LSD. He had used LSD approximately 40 times in reported doses of up to 900 mcg. Before joining the group, LSD had caused "the past to come rushing forth", and occasionally "suspicious thoughts", but this was never true after joining the group.

About 10 months after the initial interview the senior author received a call from this man's wife. She stated that he had been using LSD almost every day for several months, and that she had just signed papers to have him committed to the hospital. However, he was refusing to talk to anyone but the senior author, and the judge had acquiesced. His wife stated that he had quit his job and often stayed away from home, wandering about in the woods for days at a time. He refused to eat anything colored red and threw out everything red in their house, and he frequently told her to shut up while he conversed with Jesus and the saints. The final "straw" for her was when he refused to pick up the unemployment checks.

While hospitalized, he detailed his plans for beginning a new church. He spoke about green vapors interchanging from his body into the atmosphere through the umbilicus and leaned forward and whispered, "You wouldn't eat anything red, would you?" He denied having any problems, however, and claimed total happiness.

Another MMPI was obtained and compared with that from the previous year's comparison group testing. His initial MMPI (pre-symptomatic) showed a paranoid personality pattern. The second testing yielded a very similar profile with even more guardedness, denial, and evasiveness.

A comparison of the MMPI's on both groups revealed:

1. Most of the comparison subjects were quite defensive toward the MMPI (two-thirds at least moderately so), and they did not exaggerate or "fake sick". The inpatients did overstate; five profiles were clearly invalid, and several others were borderline. Only one inpatient was notably defensive.

2. Pd was the predominant peak in the control group and Sc was the most frequent peak of the hospitalized group (see Figure 1). All 25 inpatients had one or more deviant scores (elevations at or over a T-score of 70). In contrast, only eleven of the twenty-five comparison subjects had one or more pathological scores. Eight males among the comparison cases and none of the inpatients had the specific sexual deviation pattern (Code 45 or Code 54).

3. A majority of the inpatients obtained mixed, borderline, and overtly psychotic patterns; only five of the twenty-five comparison subjects appeared borderline psychotic on the testing, although a few others were ambiguously defensive. However, none of these five were openly schizoid patterns; rather they were all of a controlled and potentially paranoid type.

4. The comparison subjects obtained character disorder types of patterns quite consistently, but many of these were well within the normal range. Although character disorder elements occurred consistently in the profiles of the inpatients, they were complex, mixed and predominantly psychotic patterns.

To summarize our results, the inpatient and comparison groups did not show significant differences in race, age, sex, education, or early parental deprivation. Significant differences were found in marital status, occupational history, police records, and drug history. Severe psychopathology was seen in the inpatient group while hospitalized. No comparable clinical psychopathology was evident in the comparison sample. The MMPI profiles clearly corresponded to these results, although the comparison group was much more defensive toward the testing.

Discussion

It can be asked whether all chronic adverse LSD reactors were emotionally predisposed or were to some degree emotionally ill prior to LSD ingestion. This is very difficult to answer. Well known at many hospitals are the anecdotal reports of local interns and residents who were carefully screened before taking LSD (or had even been psychoanalyzed) but who subsequently had a severe adverse reaction from LSD. In addition there are now a number of reports of non-professional persons screened by psychiatric history and/or psychological testing who had adverse LSD reactions. Although 44 percent of our inpatients with a history of previous psychiatric care is a high figure, it is certainly less than 100%. None of the 24% of the comparison group who had previous psychiatric treatment had difficulty from their LSD.

Among psychiatric patients with LSD histories, we are now seeing at the hospital fewer chronic, multiple drug users who are obviously emotionally disturbed. Instead we are seeing more teen-agers who tried LSD once, e.g., at a party, got over its effects in 12 to 16 hours, but then presented at a hospital some months later with recurrent symptomatology without ever having taken the drug again. A decreasing proportion of our patients are chronic drug users. However, it is not clearly demonstrable whether this is due to a change in incidence or to a shift in selective referrals to our hospital.

This brings us to a consideration of set or specifically the attitude with which one approaches the LSD experience and the setting or environment in which one takes the LSD. Everyone recognizes the importance of these factors in the LSD experience. In fact people now have 'psychedelic experiences' in groups, in the proper setting where they hallucinate, etc. but never take drugs at all.[6] The parallels between the LSD subject and the good hypnotic subject are striking, particularly in the realm of passivity and suggestibility. Our comparison group dressed alike and even used identical phrases in answering questions. One of their favorites was "for sure", chanted over and over. They obviously received a tremendous amount of support, both during and between trips, from the group itself. The average length of stay with the group was 8 months and 24 of the 25 controls claimed that LSD (taken with the group) had led them to "God, love or peace of mind". They may thus have been successful LSD users because the group support outweighed or overcame the adverse potentials of the drug. Fifty-six percent of the inpatient group took their LSD at kick-type parties, 16 percent took it alone, 8 percent took it in "serious" groups and there was no data for 20 percent of the group.

We should not conclude, however, that set or setting are the only determinants of the type of trip one has. There is one study reported where all subjects expected psychosis, but all felt only relaxed and

---

6. The Psychedelic Game: Mademoiselle, March, 1966, p. 179.

friendly after LSD.[7] There is an ever growing LSD mythology, too, much of it having to do with set and setting.[8,9] For example, one commonly hears that a bad LSD experience will not result if:

-- One is in a calm frame of mind (no fights that day with spouse or employer);

-- One takes the LSD with 1 or 2 good friends or with an experienced sitter or guide present;

-- The room has: soft lighting and a thick carpet or mattress to sit on;

-- One is listening to the Indian Music of Ravi Shankar and reading reassuring phrases from the "Tibetan Book of the Dead"; and perhaps if one has a "downer" or Thorazine pill at hand.

But we have hospitalized many persons who had taken these precautions and who also had had up to 100 previous good LSD experiences. Our inpatient group took their LSD in many varied settings, from kick-type, acid-test parties to isolated ingestions in their rooms. However, many were most careful and serious about the preparations for taking LSD. Despite their hospitalizations a large proportion of the inpatients persisted in claiming benefit from the drug and many returned to it after discharge.

How reliable were the data from our control group? Obviously they had a motive to "sell LSD". This could explain why they all claimed no previous religion, and even no religion for their parents. It also could explain why they had found "ESP" as well as love from LSD and also why they identified themselves as a "bunch of ex-convicts and criminals" before LSD.

Summary

Twenty-five hospitalized psychiatric patients with adverse LSD reactions were compared to a sample of 25 subjects who had not had adverse reactions from the repeated use of LSD.

In all of our comparisons there were no historical elements or current clinical aspects that were unique to either group. Clearly there is no single factor that guarantees immunity from an adverse LSD reaction.

---

7. Blum, R. (Ed.): Utopiates: The Use and Users of LSD^{25}, Atherton Press, New York, 1964.

8. Ungerleider, J.T., and Fisher, D.D.: "LSD: Research and Joyride, The Nation, May 16, 1966, pp. 574-576.

9. Ungerleider, J.T., and Fisher, D.D.: "LSD: Fact and Fantasy" Arts and Architecture, 83: 18-20, December, 1966.

The prediction of successful versus unsuccessful users is further complicated by the occurrence of cases in which subjects used LSD 100 times or more with no adverse reactions and then subsequently developed psychiatric symptomatology. Set and setting appear to help but not to guarantee against adverse complications. One hypothesis, strongly supported by our test data, is that the LSD interacts with schizoid trends, unsteady reality testing, and related psychological factors. Such a complex interaction -- which is difficult to anticipate even with the best of clinical and test data -- would predict that adverse LSD reactions will be with us for some time to come.

TABLE 1

MARITAL STATUS:

	Inpatient	Control
Single	21 (84%)	10 (40%)
Married	0	15 (60%)
Divorced	2 (8%)	
Other (widow)	1 (4%)	
No data	1 (4%)	
Total:	25 (100%)	25 (100%)

TABLE 2

OCCUPATION:

	Inpatient	Control
Unemployed	13 (52%)	5 (20%)
Housewives	2 (8%)	2 (8%)
Students	5 (20%)	0 --
White collar	2 (8%)	0 --
Artists	3 (12%)	0 --
'Blue collar' jobs	0 --	18 (72%)
Total:	25 (100%)	25 (100%)

TABLE 3

POLICE RECORD:

Conviction for	Inpatient	Controls
Major crime only		3 (12%)
Alcohol only		2 (8%)
Drugs only	1 (4%)	2 (8%)
Minor crime only (including delinquency)	1 (4%)	0 --
Major crime plus drugs, alcohol, or minor crime		5 (20%)
Minor crime plus drugs or alcohol		4 (16%)
None	23 (92%)	9 (36%)
Total:	25 (100%)	25 (100%)

TABLE 4

PAST PSYCHIATRIC HISTORY

	Inpatient	Controls
OPD	8 (32%)	4 (16%)
Inpatient	3 (12%)	2 (8%)
None	13 (52%)	19 (76%)
No data	1 (4%)	0 --
Total:	25 (100%)	25 (100%)

TABLE 5

DRUG HISTORY:

	Inpatient	Controls
a) Current History:		
1. Marijuana + LSD	7 (28%)	14 (56%)
2. LSD only	12 (48%)	11 (44%)
3. Other	6 (24%)	0 (--)
Total:	25 (100%)	25 (100%)
b) Past Drug History:	(Over 6 weeks before seen)	(Before joined Disciples)
1. Only psychedelics (marijuana, LSD, mescaline, psilocybin)	10 (40%)	8 (32%)
2. Multiple[*] (excluding heroin)	5 (20%)	11 (44%)
3. Multiple[*] (including heroin)	5 (20%)	6 (24%)
4. None	5 (20%)	0 ---
Total:	25 (100%)	25 (100%)

[*] More than 1 of amphetamines, barbiturates, alcohol, psychedelics and tranquilizers.

TABLE 6

DIAGNOSIS:

	Inpatients*	Inpatients**	Controls**
Psychotic -		3 (12%)	1 (4%)
Toxic (organic)	2 (8%)		
Functional	8 (32%)		
Neurotic	7 (28%)	1 (4%)	0
Character disorder	2 (8%)	6 (24%)	12 (48%)
Borderline psychotic	2 (8%)	6 (24%)	4 (16%)
Addict	1 (4%)		0 --
(Adolescent, adjustment reaction)	1 (4%)		0 --
Multiple diagnoses	2 (8%)	6 (24%)	3 (12%)
Invalid (extreme F)		3 (12%)	
Undiagnosable			5 (20%)
Total:	25 (100%)	25 (100%)	25 (100%)

---

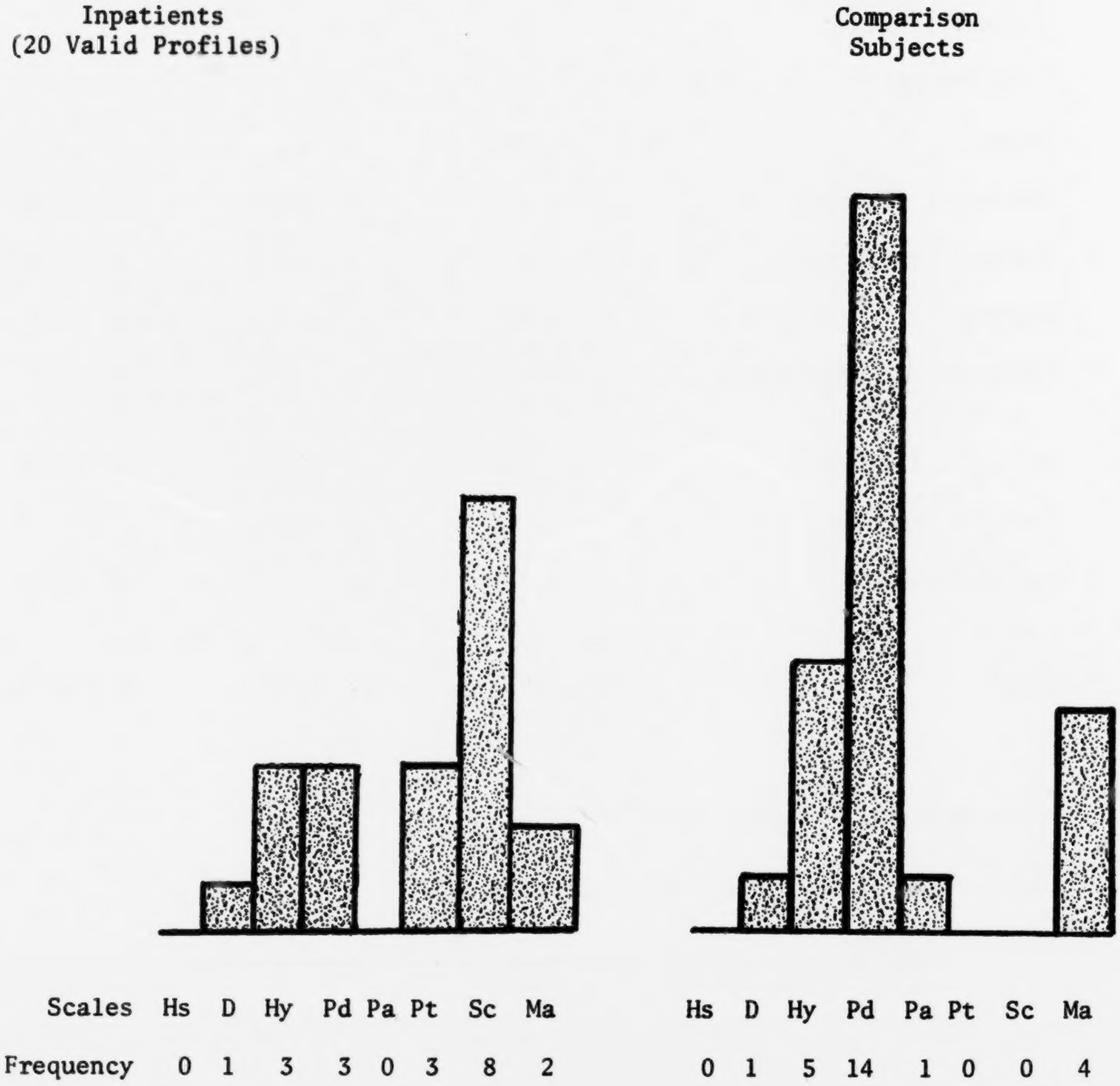
*Diagnosis via hospital chart

**Diagnosis by MMPI Personality Testing

FIGURE 1

Highest Evaluations Among the Eight

Basic Clinical Scales on the MMPI



GLUE SNIFFING[1]

Kent M. Pearson
Education Assistant
Narcotic Addiction Foundation
of British Columbia

Definition

Chemicals which produce drowsiness, dizziness, a slurring of speech, the loss of consciousness and often hallucinations are called "deliriants". They are usually solvents, volatile substances contained in lighter fluid, paint thinner, cleaning fluid, gasoline, and model airplane glue. Ground nutmeg, however, can also produce delirium eaten in quantity.

THE DELIRIANTS ARE EXTREMELY TOXIC, and can cause chronic mental confusion and coma, and sometimes death. The kidneys, brain, bone marrow and the liver are vulnerable to damage from these drugs.[2]

TOLUENE, the active intoxicating ingredient in glue, is chemically known as methyl benzene or phenyl methane. Toxicologically, only 200 parts per million are considered tolerable. It has a depressant action similar to that of barbiturates on the central nervous system (brain and spinal cord). It can also cause severe damage to mucous membranes, e.g. living cells of nose, throat and lungs, depresses the bone marrow, thereby causing aplastic anaemia (a very severe anaemia difficult to treat) with repeated exposures. Fatalities have occurred after a single dose of 50 grams (inhaled) which is about the equivalent of a 2 oz. tube of pure toluene. Plastic cement (airplane glue) is 80% toluene.[3]

Effects and Dangers

Dr. Jacob Sokol, Chief Physician at Los Angeles Juvenile Hall, examined 89 juveniles who had become residents of the Hall for delinquent abuse of glue. These children ranged in ages from 8 to 18. Seventy-seven of these were males and 12 were females. On examination 68 were found to have abnormalities in the blood, 67 showed abnormalities in the urine and 4 revealed abnormalities on liver tests.[4]

---

1. Printed in booklet form by the Narcotic Addiction Foundation of British Columbia, July, 1968.

2. The Drug Takers, a Time Life Publication, p. 112.

3. Dr. Royal L. Brown, San Bernardino, Calif. City Health Dept., cited in Narcotics and Hallucinogenics, John B. Williams (ed.), Grove Press, Beverly Hills, 1967.

4. Dr. Jacob Sokol, "Glue Sniffing in Los Angeles," in Drug Addiction in Youth, Ernest Harms (ed.), Pergamon Press, Inc., 1965.

"Tolerance to paint thinners seems to resemble that produced by alcohol. Physical dependance and withdrawal symptoms resembling those associated with alcohol addiction may accompany the abuse of many solvents. There is some difference of opinion as to whether or not the term 'addiction' can be used (in the sense of physical dependence) when referring to solvent abuse, but it can be said that the abuser may develop a dependence on the practise in the psychological sense.

The actual amount of vapour consumed of course varies with the method of inhalation, and there is a distinct danger that an abuser who is inhaling the glue from a plastic bag or other container might become unconscious and continue to inhale the vapour with resultant physiological damage from the solvent, and of course the accompanying danger of mechanical suffocation and death. The concentration of vapour and of liquid solvent thus ingested would very likely in itself be fatal."[5]

The How & Why of Solvent Abuse

Glue sniffing is practised most frequently by youngsters between ten and eighteen years of age. The glue is usually squeezed into a sock, handkerchief, paper or plastic bag which is placed over the nose and mouth. After a number of 'drags' (inhalations), the individual experiences a type of exhilaration resembling the initial effects of alcohol intoxication. Blurring of vision, ringing in the ears, slurred speech, and staggering gait are common, as are confusion, hallucinations or delusions, and disturbed, irrational behaviour.

The initial intoxication lasts for approximately 30 to 45 minutes after 'dragging', usually followed by drowsiness, stupor, and sometimes unconsciousness after about one hour. Upon awakening or recovering the individual may not recall what happened during the intoxicated period. A person under the influence of glue or another of the deliriants, may be observed to be very glassy-eyed, with pupils showing little reaction to light. He will smell very strongly of glue which has a characteristic odour much like a solvent. He will also stagger much like a drunk, have poor balance, and show impairment of thought and irrational or anti-social behaviour.

The symptoms of most forms of solvent (this includes glue, which contains toluene) abuse are rather readily discernible and the practise should be easily uncovered by adults. Cases have been reported of "glue sniffers" turning to other forms of drug abuse including heroin addiction. In areas where solvent abuse is widespread, most abusers have tried more than one type of solvent and presumably can be expected to try other similar intoxicants if they are prevented from inhaling glue. The ready avail-

---

5. Donald C. Krug, et al., "Inhalation of Commercial Solvents: A Form of Deviance," in Drug Addiction in Youth, Ernest Harms (ed.), Pergamon Press, Inc.

ability of most solvents makes their control extremely difficult.

Whilst many young people will experiment only once or twice with these products, there are others who will continue to do so even though they are made aware of the possible dangers. This is the group which is most likely composed of people who have emotional, psychological, and social problems, and in some instances physical disorders which require investigation and treatment.

Experience to date indicates that such young people -- like others who engage in anti-social or deviant behaviour -- are in conflict within themselves and with their immediate (e.g. family) or other environment (e.g. school). Extensive investigation is often required to determine the cause of their deviant, potentially self-destructive behaviour. As in other disorders of childhood adjustment it may be that changes in the family situation are essential before change in the child can be expected.

Assistance from the family physician, experienced counsellor (including the school counsellor) or a psychiatrist may be essential in the treatment of those individual and family problems which are often associated with drug abuse.

Treatment

The physiological symptoms of solvent abuse are such that early detection of abuse is fairly easy, and involved medical treatment is rarely needed. For most of the solvents in use the treatment consists of removal from the vapour-filled atmosphere and observation for a limited period including laboratory testing to uncover any lasting physiological damage. It has been the experience of most treatment persons dealing with this problem that prompt attention given to the youthful abuser offers a good chance that the practise will be voluntarily stopped. The dangers of convincing argument against the practise are such that no exaggeration is needed.

Suggested Further Reading

DuBois, Kenneth P., Geiling, E.M.K., Textbook of Toxicology, Oxford University Press, New York, 1959.

Grabski, Daniel A., "Toluene Sniffing Producing Cerebellar Degeneration." American Journal of Psychiatry, 118, 5 (Nov. 1961).

Harms, Ernest (ed.), Drug Addiction in Youth, Pergamon Press, New York, 1965.

United States Department of Health, Education & Welfare, National Clearing House for Poison Control Centers. "Glue Sniffing," February-March, 1962.

PORTRAIT OF A GLUE SNIFFER

Willie S. Ellison
Delinquency Prevention Officer
Juvenile Center
San Jose, California

Representatives of public and private agencies throughout the nation have been discussing glue sniffing during the past year. Law enforcement officers, probation officers, public health officials and manufacturers of model airplane glue have expressed the greatest interest. To the public agencies, it is a threat to the health and welfare of the minor; to the industry, it is a threat to a $50,000,000 annual business. Most of the pressure regarding the subject has been directed to the State Department of Public Health and the Food and Drug Administration because these agencies are primarily responsible for the control of dangerous drugs and chemicals.

During the past year, several California cities and counties passed ordinances prohibiting the use of model airplane glue or any other chemical or drug used in any manner for the purpose of producing an intoxicated-like condition. Santa Clara County has not passed ordinances against "glue-sniffing"; however, Section 601 of the Juvenile Court Law has been used to bring minors before the court, indicating that they are in danger of leading an idle and dissolute life.

The Juvenile Probation Department initiated a group counseling program for minors referred for sniffing because of the nature and extent of this relatively new problem in Santa Clara County and the seeming lack of response to warnings and informal handling. The program was to serve two basic purposes: (1) Education and rehabilitation for minors who had seemingly become psychologically dependent to the point that they were using glue on a daily basis, and (2) Research into a problem of national concern. This report is the result of a year's study, during which period of time one hundred cases were referred. Forty-eight of these cases were handled in our group counseling program. These 48 cases are less than 1% of the total number of delinquent cases referred during the past year, yet they represent the nucleus of a complex social problem, of which glue sniffing is only a symptom of larger social problems.

Our study indicates that glue sniffing is a form of passive retreat, and the personalities of the "sniffers" possess many of the basic characteristics of alcoholics and drug addicts. A few of the outstanding characteristics found in the glue sniffer are: (1) low intelligence rating; (2) low socio-economic background; (3) most are members of a minority group; (4) weak personality structure. These aspects will be discussed later in this report.

Though glue sniffing is only symptomatic of general socio-economic disorder, it must be treated or controlled, as it perhaps can lead to steady deterioration of various parts of the body and eventual death.

Medical practitioners generally agree that continued inhalation of fumes from "glue" will cause damage to the nose membranes, lungs, liver, kidneys, and the central nervous system, although no longitudinal studies are available. At this time, therefore, it has not been determined to what extent and over what period of time a person would have to sniff glue to cause permanent physical damage or death.

The following are typical cases of glue sniffers:

(1) Robin is 15 years of age. He is mentally retarded with an I.Q. of 65. He has been sniffing glue for about 15 months. He was discovered indulging in sniffing about eight months ago by his parents, and they took him to his family doctor; the parents then, upon the doctor's recommendation, had him committed to the State Hospital, and he stayed there for two weeks. When released from the hospital, he immediately started sniffing glue again. The parents came home one day and found him unconscious. They could smell the glue on his breath and they found several empty glue tubes in his room. He says he sniffed seven tubes to see how much it would take to "knock me out". They took him to the First Aid Station and, when he had sobered up, brought him to the Juvenile Probation Department and stated he was beyond their control. He could not stop sniffing glue and could not get along at home or in school.

He was placed on informal supervision and requested to come to the group counseling sessions. Two months later he was again caught sniffing glue and was suspended from school. He was returned to custody and placed on formal probation. Three months ago he was returned home, and he continues to attend the group sessions. Robin has no other law violations, but he has two older brothers with extensive delinquent histories. The family has experienced extreme economic and cultural deprivation. He is quiet; difficult to communicate with; lacking in drive, ambition, and motivation; has no hobbies or interests; and does not take part in any form of organized social or recreational activity. He has been in our group for four months, and at best his progress has been inconsistent. His opinion of himself is very low.

(2) Roy is 16 years of age. He is mentally retarded and does not attend school. He is a loner and is extremely withdrawn. He is physically handicapped, having a deformed arm. He has a delinquent history of burglary and fighting and a long history of truancy and classroom disturbances. He comes from an extremely deprived family -- culturally, economically, and socially -- and has eleven siblings, four of whom are retarded. He was picked up three months ago with a young adult for sniffing glue. At that time he was working in the fields and admitted to sniffing five tubes of glue a day. He wasn't sure that he could stop sniffing. He was made a ward of the court on probation and assigned to our group. He did not attend the first two meetings. One month after his release from Juvenile Hall, he was returned for drinking and petty theft. After court he was returned home, and one month later he was again picked up for

sniffing glue. He had several tubes in his possession when he was taken into custody. He is presently on probation and attending group sessions regularly, but he does not participate in the group discussion. He has a younger sister who sniffs glue.

(3) Arroyo is 14 years of age. He is a loner and hates school. He is mentally retarded and in a special class. He is a habitual sniffer and usually seeks out younger boys and asks them to "sniff" with him. He was initially picked up in the middle of the night for sniffing glue. At that time he was under the influence to such an extent that he could not tell the officer where he was going or where he had been. He lives with his mother and four siblings, all of whom are mentally retarded -- including the mother. Arroyo is on probation and attends group sessions regularly. He is extremely quiet and withdrawn, and is suspected of sniffing glue at this time. He has a history of truancy and other school problems. He has an older brother who sniffs glue.

A great deal of emphasis was placed on the similarities of the minors involved in our study. As a group, there is a lack of interest or motivation; they are describable by a single word -- inadequate! They are low in intelligence, awkward physically, and shabby dressers; they do not participate in sports, either actively or passively; they are poor readers, slow learners -- in short, not quite up to the level of their peers. These factors were predominant in all the cases including those who came within the normal intelligence range.

Can A Minor Become Addicted?

This is a medical question, but as yet there is no evidence of "addiction" in the usual sense of the term. However, a person can become extremely psychologically dependent upon glue. We normally refer to frequent users as "habitual sniffers". Our initial goal is to withdraw the habituated minor from his psychological dependence by placing him in custody for short periods of time. This structured living situation seems to provide the necessary "lift" and through its group activities allows the minor a chance to participate in a situation where there is less group pressure for conformity. Our program is designed to provide the needed "crutch" to assist the minor in holding himself up when he returns to normal community life. The ultimate goal is his being self-supporting. At the time of his release from custody, he is aware that he will be involved in our intensive counseling program. The person who uses glue on a sporadic or experimental basis only, however, is not likely to develop any significant degree of psychological dependence, and the technique for terminating his experimentation with glue may require nothing more than placing him in custody for a few days and explaining the dangers to him and his parents.

Symptoms

There are many ways in which glue sniffing can be detected. First of all, contrary to popular belief, glue is normally inhaled through the mouth instead of the nose. The odor is easily detected on the minor's breath. Other symptoms are: the appearance of a drunken state or a stupor-like condition; appearing unsteady on the feet; seemingly unusually giddy or silly; watery or dreamy eyes and enlarged pupils; continual sniffing of the nose; complaints of a buzzing sensation in the head; staggering; incoherent speech; dizziness; a "hopped-up" or "king of the mountain" feeling; a lack of appetite and an unusual loss of weight. The latter have been extremely significant factors in determining whether or not the minor is continuing to sniff glue once he becomes involved in our program.

Social and Economic Factors

Our study has revealed that all the minors referred for glue sniffing come from lower socio-economic backgrounds. They are products of sociological problems of which glue sniffing is one of the symptoms and is considered another form of delinquent behavior. Most of these young people are from minority group backgrounds, primarily Mexican-Americans in this area. They are from areas where the delinquency rates are high, and standards of health, education, and welfare are low. Most of them have histories of truancy and are generally nonacademic achievers, not athletically inclined, do not belong to clubs or organizations, have experimented with other chemicals such as lighter fluid, gasoline, inhalers, marking pencils, and alcohol. The majority have brothers or sisters who have been involved in law violations.

Psychological Factors

Most glue sniffers are intellectually dull and are in special classes in school. Sixty percent of the group have I.Q. ratings below 75. These boys are generally passive, withdrawn, poor communicators and have very low opinions of themselves. They are generally weak in personality structure. Projective tests of these youngsters show anxiety, passivity, a withdrawal from social situations, disorganization, a limited capacity for learning, and a fragmented or brittle personality which tends to break down under stressful situations. While low intelligence was a significant feature in most of the cases, there is also a multiplicity of other social, cultural, and economic factors involved in all the cases.

Age and Sex

The most prevalent age seems to be the 13- to 15-year bracket. There are cases of younger age groups, but they are usually introduced to the idea by older boys. There are very few referrals between the ages of 16 - 19 years. This group is extremely difficult to work with. They all have I.Q.'s below 75 and are not attending school.

This activity is participated in primarily by boys. The few girls involved came from similar family backgrounds and were usually associates of the boys. No girls were involved in the group counseling program.

Legal Aspects

All minors were referred to the court under the provisions of Section 601 of the Juvenile Court Law. One-half of the minors in the group were handled on informal supervision. Official versus informal handling of cases has not been a significant factor in the minors' participation and progress in the program. By policy we refer most of the "heavy sniffers" for court wardship.

Recidivist Rate

Recidivism among the official cases (wards) was higher than among the unofficial cases. One factor to consider is that the serious cases were always referred for wardship, whereas the worker believed that the less serious cases could reasonably be handled informally.

Other Types of Crimes

The minors who were involved in offenses other than glue sniffing were usually involved in crimes against property, burglary, auto theft, and petty theft. One boy was committed to an institution for a crime against another person five months after his release from our group. In several instances the crimes listed were committed while the minor was sniffing glue. These, however, were done as a group and not on an individual basis. The boys all have histories of being difficult to reach, at home and at school.

Evaluation

The degree of success of our program is difficult to measure at this time, but because we are working with a group of basically "weak" individuals who need continuing support in their life adjustments, the program should be continued with a few specific modifications. Of particular importance is the need for counseling on a weekly basis. The bimonthly contacts are too infrequent. Adequate time for a member of the Department to work with this group would be of significant benefit. We feel there is no need for additional laws at this time. Since this is generally a juvenile problem, and not totally one for probation, the present laws seem to be sufficient to administer the necessary action. There is a need for closer contact with the schools, law enforcement personnel, public health officials, and other public and private agencies to work on prevention and control of the problem. An even greater need is for the education of the general public as to what measures should be taken when a minor is discovered sniffing glue. Also recommended is more thorough psychological testing, medical examinations, and intensive work with the parents of the minors involved.

Conclusion

After one year of intensive study, the fact that "glue sniffing" is, in essence, a symptom of a larger social problem is evident. The data to support our findings can be found in the case histories handled by the Juvenile Probation Department during the past year. This study has taken into consideration all the social, cultural, and economic factors involved in the lives of the individuals and their families. We are working with, and speaking of, a group of weak individuals who come from a basically weak, fragmented family structure and develop in a milieu of deprivation. In sixty percent of the cases handled, the mother is the only parent in the home and is receiving (or has received) aid from the County Welfare Department. All the referrals are from areas in the city where the delinquency and crime rates are very high, and there are many other problems existing.

Our study also points out that these dull, deprived, depressed, withdrawn youngsters are vulnerable and are likely candidates for further delinquent activity along the lines of stronger drugs and alcoholic beverages. Even those minors referred for glue sniffing who have average intelligence are products of multiple problem families and seem destined for further delinquent behavior. With these facts in mind, some modification of our problem is needed; much of our efforts must be directed toward strengthening the individual so that he can withstand the many pressures of social life. Work with, and in, the community is also indicated. Seemingly, the act of glue sniffing is just another form of "passive retreat" which takes the individual away from the family, school, and any other organized form of community life. A psychiatric consultant at one of the California state prisons has stated that "glue sniffing in the prison is a form of behavior practiced primarily by members of the lower socio-economic strata of the prison population and particularly those who are schizoid, depressed, dependent and often persons with an alcoholic problem in free life."[1] He considered this an affectation and problem only to the most psychologically disorganized group of inmates, and the more aggressive and active inmates do not involve themselves in this type of activity.

---

[1] Raymond L. Hack, M.D., Correctional Training Facility, Soledad State Prison.

Our program has offered a temporary substitute activity and a needed "crutch" which they can lean on during periods of distress. However, this does not solve the problem, it merely alleviates one of the symptoms. What will happen to these minors when they are confronted with another stressful situation? It is doubtful whether or not our program has had such lasting effect that it will change a whole pattern of behavior. One of the needs is to develop an ongoing program and attempt to keep these minors actively involved in some organized activity.

The easy way out is to remove all model airplane glue from the markets. However, this hardly seems fair since the problem is centered around a small percentage of the nation's youth who are using glue for purposes other than that for which it was made. There are thousands of adults and juveniles alike who use model airplane glue in perfecting a constructive, wholesome, part-time activity -- namely, the building of model cars, trucks, airplanes, ships, rockets, and many other objects.

One avenue to consider in coping with the problem is for every law enforcement officer, teacher, parent, public health official and other public and private agency member to put forth a greater effort in detecting and making the proper referrals on minors who are known "glue sniffers". The minors normally use close quarters for sniffing, such as theaters, behind school buildings, bathrooms, creek beds, parks, and the more clever ones will sniff in the classroom while pretending to be yawning or will wait until he goes to bed at night. School officials who use model airplane glue or other solvents in classroom projects should be alert to prevent its misuse. Parents should check unusually large supplies of airplane glue or other solvents in their children's room and check their pants, shirt, and jacket pockets. If they are carrying a rag, the pockets will be hard and stick together. These are vulnerable children and need protection from themselves.

The reaction to the glue is immediate, and it leaves no apparent aftereffect, such as headaches or nausea. Glue is cheap and easily obtainable, and because of the type of children who normally become sniffers, glue sniffing is not looked upon as a "passing fad". The industry is in the process of finding substitute chemicals which would remove the present intoxicating ones, thereby eliminating the immediate danger. However, in the meantime "glue sniffing" must be considered a very serious problem.

MARIHUANA AND SOCIETY[1]

American Medical Association
Council on Mental Health
Chicago, Illinois

After careful appraisal of available information concerning marihuana (cannabis) and its components, and their derivatives, analogues and isomers, the Council on Mental Health and the Committee on Alcoholism and Drug Dependence of the American Medical Association and the Committee on Problems of Drug Dependence of the National Research Council have reached the following conclusions:

1. Cannabis is a dangerous drug and as such is a public health concern.

For centuries, the hemp plant (cannabis) has been used extensively and in various forms as an intoxicant in Asia, Africa, South America, and elsewhere. With few exceptions, organized societies consider such use undesirable and therefore a drug problem, and have imposed legal and social sanctions on the user and the distributor.

Some of the components of the natural resins obtained from the hemp plant are powerful psychoactive agents; hence the resins themselves may be. In dogs and monkeys, they have produced complete anesthesia of several days' duration with quantities of less than 10 mg/kg.

Although dose-response curves are not so accurately defined in man, the orders of potency on a weight (milligram) basis are greater than those for many other powerful psychoactive agents, such as the barbiturates. They are markedly greater than those for alcohol. In India, where weak decoctions are used as a beverage, the government prohibits charas, the potent resin, even for use in folk medicine. In many countries where chronic heavy use of cannabis occurs, such as Egypt, Morrocco, and Algeria, it has a marked effect of reducing the social productivity of a significant number of persons.

The fact that no physical dependence develops with cannabis does not mean it is an innocuous drug. Many stimulants are dangerous psychoactive substances although they do not cause physical dependence.

2. Legalization of marihuana would create a serious abuse problem in the United States.

The current use of cannabis in the United States contrasts sharply with its use in other parts of the world. In this country, the pattern of use is primarily intermittent and of the "spree" type, and much of it consists of experimentation by teenagers and young adults. Further, hemp grown in the United States is not commonly of high potency and "street" samples sometimes are heavily adulterated with inert materials.

---

[1] Journal of the American Medical Association, Vol. 204, No. 13 (June 24, 1968), pp. 91-92.

With intermittent and casual use of comparatively weak preparations, the medical hazard is not so great, although even such use when it produces intoxication can give rise to disorders of behavior with serious consequences to the individual and to society.

And, while it is true that now only a small proportion of marihuana users in the United States are chronic users and can be said to be strongly psychologically dependent on the drug, their numbers, both actual and potential, are large enough to be of public health concern.

If all controls on marihuana were eliminated, potent preparations probably would dominate the legal market, even as they are now beginning to appear on the illicit market. If the potency of the drug were legally controlled, predictably there would be a market for the more powerful illegal forms.

When advocates of legalizing marihuana claim that it is less harmful than alcohol, they are actually comparing the relatively insignificant effects of marihuana at the lower end of the dose-response curve with the effects of alcohol at the toxicity end of the curve -- i.e., the "spree" use of marihuana vs. acute or chronic "poisoning" with alcohol. If they compared both drugs at the upper end of the curve, they would see that the effects on the individual and society are highly deleterious in both cases.

Admittedly, if alcohol could be removed from the reach of alcoholics, one of the larger medical and social problems could be solved. But to make the active preparations of cannabis generally available would solve nothing. Instead, it would create a comparable problem of major proportions.

That some marihuana users are now psychologically dependent, that nearly all users become intoxicated, and that more potent forms of cannabis could lead to even more serious medical and social consequences -- these facts argue for the retention of legal sanctions.

3. Penalties for violations of the marihuana laws are often harsh and unrealistic.

Persons violating federal law with respect to possession of marihuana are subject to penalties of from 2 to 10 years imprisonment for the first offense, 5 to 20 years for the second offense, and 10 to 40 years for additional offenses. Suspension of sentence, probation, and parole are allowed only for the first offense. Many of the state laws provide for comparable penalties. With respect to sale, penalties are even more severe.

Laws should provide for penalties in such a fashion that the courts would have sufficient discretion to enable them to deal flexibly with violators.

There are various degrees of both possession and sale. Possession ranges from the youngster who has one or two marihuana cigarettes to an individual who has a substantial quantity. Sale may range from the transfer of a single cigarette to the disposition of several kilograms of the drug.

While persons should not be allowed to become involved with marihuana with impunity, legislators, law enforcement officials, and the courts should differentiate in the handling of the occasional user, the frequent user, the chronic user, the person sharing his drug with another, and the dealer who sells for a profit.

Of particular concern is the youthful experimenter who, by incurring a criminal record through a single thoughtless act, places his future career in jeopardy. The lives of many young people are being needlessly damaged.

For those persons who are chronic users of the drug, and are psychologically dependent on it, general medical and psychiatric treatment, plus social rehabilitative services, should be made readily available. Such persons should not be treated punitively for their drug abuse alone any more than are persons dependent on other drugs, such as narcotics or alcohol.

Furthermore, if the purpose of imposing penalties is to deter acts which might injure the individual and disrupt society, then equitable penalties, insofar as they enhance respect for the law, can contribute to effective prevention.

4. Additional research on marihuana should be encouraged.

Only recently has an active hallucinogenic principle of cannabis been exactly identified and synthesized. Sufficient time has not elapsed to obtain a substantial body of pharmacologic and clinical evidence concerning its effects. There are no carefully controlled clinical studies of long-time effects of cannabis on the central nervous or other organ systems. These and other considerations point to the importance of ongoing research in this area.

It must be emphasized, however, that the issue which faces the United States today is not whether we know all there is to know about marihuana scientifically. Obviously every effort should be made to correct the deficiencies in our knowledge. The issue is whether we can ignore the experiences and observations established over centuries of heavy use of hemp preparations in various societies. A current solution to the problem does not relate to what is not known, but to those facts which are known about cannabis and its preparations. There is extensive experience in its use in all of its forms, including the effects of the potent natural resins which contain the active biological principles.

5. Educational programs with respect to marihuana should be directed to all segments of the population.

Educational material, based on scientific knowledge, should point out the nature of marihuana and the effects of its use. Such material should be an integral part of a total educational program on drug abuse.

Primary and secondary schools, as well as colleges and universities, should establish such programs.

The communications media should disseminate authoritative information to the general public.

Physicians, as professional practitioners and concerned members of the community, should call attention frequently and forcibly to the problems of drug abuse and drug dependence.

An informed citizenry, in the final analysis, is the most effective deterrent of all.

Drug Dependence: Its Significance and Characteristics

Drug dependence of the cannabis type is a state arising from chronic or periodic administration of cannabis or cannabis substances (natural or synthetic). Its characteristics are:

(a) Moderate to strong psychic dependence on account of the desired subjective effects.

(b) Absence of physical dependence, so that there is no characteristic abstinence syndrome when the drug is discontinued.

(c) Little tendency to increase the dose and no evidence of tolerance.

For the individual, harm resulting from abuse of cannabis may include inertia, lethargy, self-neglect, feeling of increased capability, with corresponding failure, and precipitation of psychotic episodes. Abuse of cannabis facilitates the association with social groups and sub-cultures involved with more dangerous drugs, such as opiates or barbiturates. Transition to the use of such drugs would be a consequence of this association rather than an inherent effect of cannabis. The harm to society derived from abuse of cannabis rests in the economic consequences of the impairment of the individual's social functions and his enhanced proneness to asocial and antisocial behaviour. --Eddy, N.B., et al: Drug Dependence: Its Significance and Characteristics, Bulletin, World Health Organization, 32:721-733 (No. 5), 1965.

NARCOTIC DRUG AND MARIHUANA CONTROLS[1]

Donald E. Miller
Chief Counsel, U. S. Bureau of Narcotics

The responsibilities of the Bureau of Narcotics as established by Congress relate to opium, its alkaloids and derivatives; the coca leaf and its principal derivative cocaine; the plant Cannabis sativa L., otherwise known as "marihuana"; and a specific class of synthetics called "opiates", such as Demerol and methadone.

Some of you do not have the historical perspective possessed by others here today. So, perhaps, it would be beneficial to take a quick look at the past.

Many people think of narcotic addiction as something which has sprung up and which has become widespread in the last decade or two. The fact is, this is a relatively old problem. In 1914, Congress enacted the Harrison Narcotic Drug Act, the forerunner of the law which is now incorporated in the Internal Revenue Code. This legislation was followed by the Import and Export Acts of 1914 and 1922; The Act of June 7, 1925, barring the importation of crude opium for the purpose of manufacturing heroin; the Uniform Narcotic Drug Act approved in 1932; the Marihuana Tax Act of 1937; the Opium Poppy Control Act of 1942; an Act to control synthetic narcotic drugs in 1946; the Narcotic Control Act of 1956; and the Narcotics Manufacturing Act of 1960.

The Harrison Narcotic Act[2] provides the machinery through which the Bureau is able to exercise control over the distribution of narcotic drugs within the country. Registration and payment of a graduated occupational tax by all persons who import, manufacture, produce, compound, sell, deal in, dispense or give away narcotic drugs is required. A commodity tax at the rate of one cent per ounce or fraction thereof is imposed upon narcotic drugs produced in or imported into the United States and sold or removed for consumption or sale. Sales or transfers of narcotic drugs are limited generally to those made pursuant to an official order form which may be secured (in blank) by registrants from the district director of internal revenue.

Exception from the order-form requirement is made in the dispensing to a patient by a qualified practitioner in the course of his professional practice only, and in the sale by a druggist to or for a patient, pursuant to a lawful written prescription issued by a qualified practitioner.

---

[1] Paper presented at National Association of Student Personnel Administrators Drug Education Conference, Washington, D.C., November 7-8, 1966. The NASPA Drug Education Project is supported by Contract No. FDA 67-3, with the Food and Drug Administration, Dept. of Health, Education and Welfare.

[2] 26 U. S. C. 4701 et seq. (All subsequent references will be found at the end of the text.)

The Narcotic Drugs Import and Export Act[3] authorizes the importation of such quantities only of crude opium and coca leaves as the Commissioner of Narcotics shall find to be necessary to provide for medical and legitimate (scientific) needs. Importation of any form of narcotic drug except such limited quantities of crude opium and coca leaves is prohibited. The importation of smoking opium or opium prepared for smoking is specifically prohibited. Likewise, the importation of opium for the manufacture of heroin is prohibited. Exportation of manufactured drugs and preparations is permitted under a rigid system of control designed to assure their use for medical needs only in the country of destination.

The Marihuana Tax Act[4] also requires registration and payment of a graduated occupational tax by all persons who import, manufacture, produce, compound, sell, deal in, dispense, prescribe, administer, or give away marihuana. No commodity tax is imposed on this drug. However, a tax is imposed upon all transfers of marihuana at the rate of $1 per ounce or fraction thereof, if the transfer is made to a taxpayer registered under the act, or at the rate of $100 per ounce, if the transfer is made to a person who is not a taxpayer registered under the act. Transfers are also limited generally to those made pursuant to official order forms obtainable from the district director of internal revenue. Exceptions from the order-form and transfer-tax requirement are made in dispensing to a patient by a qualified practitioner in the course of his professional practice only, and in the sale by a druggist to or for a patient, pursuant to a lawful written prescription issued by a qualified practitioner. The act is designed to make extremely difficult the acquisition of marihuana for abusive use and to develop an adequate means of publicizing dealings in marihuana in order to tax and control the traffic effectively. The imposition of a heavy transfer tax has been held to be a legitimate exercise of the taxing power despite its collateral regulatory purpose and effect.

The Opium Poppy Control Act[5] was approved December 11, 1942. The opium poppy, as the source of opium, is therefore the source of opium derivatives such as morphine, heroin, and codeine. The act prohibits the production in the United States of the opium poppy, except under license, and the issuance of a license is conditioned upon a determination of the necessity of supplying by this means the medical and scientific needs of the United States for opium and opium products. No such necessity has arisen, nor is it likely to arise. Consequently, no license has been issued under the act, and it is unlikely any will be issued in the future.

The Narcotics Manufacturing Act of 1960[6] provides for a system of licensing and establishment of manufacturing quotas for all narcotic drug manufactures, with appropriate safeguards, with respect to the manufacture of the basic classes of narcotic drugs, both natural and synthetic, for medical and scientific purposes. Provision is made to give full effect to treaty provisions and obligations of the United States to limit exclusively for medical and scientific purposes the manufacture of narcotic drugs and to require that such manufacture be restricted to persons and premises that have been licensed for this purpose. Equitable assignment of quotas and the adjustment of these quotas are provided for in the Act and are based upon the amount of each narcotic drug found to be necessary to supply medical and scientific needs.

The Uniform Narcotic Drug Act[7] or similarly acceptable legislation is in force in all of the States. The Federal laws were never enacted as the only controls necessary over the illicit narcotic drug traffic. It has always been contemplated that the authorities of the States will accept and discharge the primary responsibility of investigating, detecting, and preventing the local illicit traffic conducted by the retail peddler, together with the institutional care and treatment of drug addicts within their respective jurisdictions.

The act prohibits any person from manufacturing, possessing, selling, purchasing, prescribing, administering, or giving away any narcotic drug except as authorized by the act. Provisions are made for licensing of manufacturers and wholesalers as well as setting forth the classes to which and the manner in which narcotic drugs may be sold or dispensed.

Similar to the Federal law, the act restricts the legitimate traffic to qualified manufacturers, wholesalers, drugstores, practitioners, and researchers. Narcotics may be sold only pursuant to narcotic order forms, or prescriptions; pharmacists may fill prescriptions issued by doctors; pharmacists may sell certain exempt preparations without a prescription; and physicians may either dispense to or prescribe narcotics for patients in the course of professional treatment. Records must be maintained and be open to inspection.

The controls over marihuana under the Federal and State laws are dissimilar. Under the Federal laws, the Marihuana Tax Act of 1937 placed the same type of controls over marihuana as the Harrison Narcotic Act of 1914 placed over narcotic drugs.

On the other hand, the States have covered marihuana within the definition of "narcotic drug" since adoption of the Uniform Narcotic Drug Act of 1932. Legally, marihuana is not considered a narcotic drug under the Federal law, but it is considered a narcotic under the State laws. I do not consider these differences to be significant, since both laws are designed to control a substance which is socially unacceptable. It is less important that the controls fit like some finely balanced formula under either the taxing clause or the commerce clause of the Constitution, or in a category according to its similarity with other dangerous drugs. In fact, the Supreme Court of Colorado has ruled it is perfectly permissible to define marihuana as a narcotic drug.[8]

At this point I want to dwell upon a subject which I perceive to be a most important aspect of this conference -- one which appears to be very controversial in academic communities. At all conferences of this type these questions are always asked: "Why is marihuana controlled at all?"

and "What is so bad about marihuana?" Accordingly, I shall meet the issues head-on, furnish you with the views of the officials of the Bureau of Narcotics, and illustrate why we consider marihuana as an exceedingly dangerous drug. I sometimes fear that law enforcement officers are the sole voices in the wilderness warning that today's languor will lead to a spread of marihuana abuse rather than its control.

Recently, within the United States, we have witnessed an increasing abuse of marihuana, as well as other so-called hallucinogenic or "mind changing" drugs. Regrettably this trend has been encouraged by a small number of highly articulate spokesmen who attempt to justify its use with an aura of intellectualism or religious practice. They readily extoll the virtuous effects of marihuana intoxication and advocate that its use be legalized. Of more concern are the conclusions of a few observers in the academic field who have seemingly found no threat sufficient to merit the prohibition of marihuana. Such a position is completely contrary to the findings of medical consensus as well as the social experience of this and other countries. An examination of most leading authorities will serve to illustrate this point.

Marihuana does differ significantly from the opiate class of drugs in that its use does not produce addiction of the morphine type. Abstinence does not produce a physiological withdrawal syndrome in the user; however its use does result in a psychological dependence and according to Dr. Ausubel chronic users go to great lengths to insure that they will not be without the drug. Moreover deprivation may result in "anxiety, restlessness, irritability, or even a state of depression with suicidal fantasies, sometimes self-mutliating actions or actual suicide attempts,"[9] all symptoms of a psychological withdrawal syndrome. For these reasons marihuana is more often said to be habituating rather than addicting, although one of the most recent investigators claims that at least from a psychiatric point of view there is little difference.[10] From a medical standpoint this distinction cannot be overlooked, but it assumes only minor importance when considering the practical social values of the drug. It is, therefore, somewhat incredible that the distinction has been cited by some observers as though it were a positive virtue of marihuana.

There is medical agreement that the active ingredients of marihuana, the tetrahydrocannabinols, are powerful and dangerous compounds when used in intoxicative proportions. The potent parts of the plant have been used from very ancient times and there are claims that it is the most widely abused drug in the world today. The plant preparations are commonly found in a number of forms of which hashish and marihuana for smoking are the most common. In this country all such forms are included in the legal definition of "marihuana".

In the past, efforts to discover a medical use for marihuana compounds have not proven fruitful. There are, however, current attempts being made to discover uses for the drugs, and a research team of Princeton University chemists headed by Dr. Edward G. Taylor, has succeeded in synthesizing tetrahydrocannabinol compounds. He expresses the hope that marihuana may become the source of a whole new generation of drugs with a range of useful therapeutic functions.[11] Also Kabelik, a Czechoslovakian scientist, has demonstrated antibacterial, analgesic, anticonvulsive and local anaesthetic qualities of tetrahydrocannabinols.[12] One thing is clear from the research, and this is that a number of powerful drugs may be derived from the resins of the cannabis plant. In medicine, the current task is still to find in them a proper therapeutic use. As for society, the fact still remains, that the evidence supports the view that the bad aspects of marihuana abuse exceed far and beyond any possible good which might be derived from it.

The formal list of reported physiological and psychological effects of the intake of marihuana is quite varied and lengthy. For example, the 1965 report on Drug Dependence for the World Health Organization lists the following:

> "Among the more prominent subjective effects of cannabis . . . are: hilarity . . . carelessness; loquacious euphoria . . . distortion of sensation and perception . . .impairment of judgment and memory; distortion of emotional responsiveness; irritability, and confusion. Other effects, which appear after repeated administration, . . . include: lowering of the sensory threshold, especially for optical and accoustical stimuli . . . illusions, and delusions that predispose to antisocial behavior; anxiety and aggressiveness as a possible result of the various intellectual and sensory derangements; and sleep disturbances."[13]

The immediate physiological effects of marihuana intoxication include ataxia, a loss of co-ordination in the limbs; hypoglycaemia, an abnormally low concentration of glucose in the blood; hypothermia, an abnormal lowering of the over-all body temperature; bulimia, a voracious appetite accompanied by a desire for sweets; and inflammation of the mucous membranes of the mouth, pharynx and bronchial tubes. It is, however, the effects upon the operation of the central nervous system which are most profound and unfortunately, least explored. Dr. Donald Louria also claims that marihuana may produce all of the hallucinogenic effects of which LSD is capable.[14]

A recent medical symposium sponsored by the CIBA Foundation summarizes much of the current research and opinions of leading medical authorities. To quote briefly from the conclusions of these studies:

> "One can easily imagine the difficult situation to which society would be condemned if the selling of hashish were legal.
> "It is well known that taking hashish causes both pathological and psychic disturbances, thus rendering the addict a burden to society."[15]

At the present time marihuana is the subject of world-wide prohibition as expressed in the Single Convention on Narcotic Drugs of 1961. This repression has been found to be necessary not simply because of the harmful effects of the drug on the consuming individuals but also because of the antisocial conduct which it engenders. The United States laws are in accord with this global policy of suppression and heavy penalties are prescribed for marihuana traffickers.

It has become popular with those who would legalize marihuana, to claim that its use is no worse than the current use of alcohol. However, any comparison of marihuana with other substances such as alcohol is extremely tenuous at best, and in a basic sense, such efforts are pointless. The attempt, no matter how successful, can produce no guide to action. Surely it is not valid to justify the adoption of a new vice by trying to show that it is no worse than a presently existing one. It is true that alcohol abuse also constitutes a major social problem, but the social damage which would result from a permissive use of marihuana cannot, like some finely balanced equation, be canceled out by placing a measure of social damage resulting from alcohol opposite it. The result can only be additive.

A factor which is frequently overlooked by critics of the present prohibition is that the limited social experience which we have had in this country is with marihuana having a low concentration of the active ingredient tetrahydrocannabinol. In the marihuana which is distributed in the illicit traffic of this country, it is common to find conglomerations consisting of leaves, seeds, stems, and tops,[16] in spite of the fact that nearly all of the active principle of the plant is contained only in the resins of the flowering tops of the female plant. This adulteration is a consequence of the present enforcement activity, and while this policing efficiency has the desirable benefit of lessening the amount of the active ingredients consumed in the United States, it also unfortunately results in concealing from investigators the full danger involved in its use. The low purity of the marihuana which is available results in disguising its consumption as a causative factor in crime and mental illness, a connection which is much more apparent in those who have used the more concentrated forms such as hashish. Moreover the difficulties of obtaining even the adulterated preparations further conceal the damage of chronic consumption.

This fact has often mistakenly led to the belief that marihuana consumption is one of the less damaging forms of drug abuse. The recent report of the Subcommittee on Narcotic Addiction of the New York Medical Society found that the prohibition against marihuana clearly should be maintained. The only significant opposition to the existing controls is that the Subcommittee feels the penalties for possession should be decreased since the marihuana commonly found in the United States is of a much lesser potency than that found elsewhere.[17] The report concedes that marihuana in its stronger forms such as hashish is definitely associated with criminality, violence and insanity,[18] but it fails to comprehend that the low grade of marihuana available in the United States is a direct consequence of our nation-wide policing effort. It should be realized that if the consumption of marihuana were legalized the natural consumer demands would result in the marketing of a more refined and consequently more dangerous product than is usually obtainable.

Dr. Donald Louria, Chairman of the New York Medical Society's Subcommittee, tacitly recognizes the inevitability of this process in his recent volume entitled Nightmare Drugs. In it he speaks of marihuana of the "American type" by which he means that mixture most often encountered in this nation's illicit traffic as opposed to the better grades such as hashish which he claims to be five times as potent. Thus he rightly concludes that:

> "If we legalize marijuana, of the American Type are we not taking the first steps to legitimize the widespread use of more potent hallucinogens with all their immense potential dangers? With legalization, inevitably there would develop in this country a substantial number of chronic, excessive users, thus encouraging the likelihood of chronic psychosis and criminality."[19]

The use of hashish and perhaps of pure tetrahydrocannabinol would develop. Just as the refinements of the opium poppy finally made available the drugs heroin and morphine, and the switch to the more sophisticated form of drug taking, the refinements of the cannabis plant can be expected to result in the switch to tetrahydrocannabinol.

Availability of only the mild marihuana preparations in this country explains much of the reason for the existing controversies as to the seriousness and permanency of the effects of marihuana. For example, the report prepared for the Mayor of New York in 1944 concluded that there appeared to be no permanent mental damage suffered by the marihuana-using subjects within its purview. However, as Wolff pointed out five years later in his Latin America studies, these observations were not based on the chronic use of marihuana.[20] In the Near East where the refinement of hashish is readily available, a very high incidence of permanent insanity has been recorded among the users.[21] In his study of drug addiction, Dr. Ausubel states that although no permanent physical damage or deterioration has been reported in the United States among marihuana users:

> "In India, on the other hand, where chronic addiction is more common and of longer standing, reliable evidence of damaged health has been reported for 42 percent of chronic users."[22]

In Egypt, where according to recent press reports,[23] habitual marihuana use has reached the alarming figure of 30 percent of the population, the Government has unqualifiedly stated that:

> ". . . the prepared product of cannabis sativa plant, while having very limited medical use, is capable of profoundly disturbing the brain cells and of inducing acts of violence, even murder; that it is in fact a

> throughly vicious and dangerous thing of no value whatever to humanity and deserving of nothing but the odium and contempt of civilized people."[24]

Wolff also claims that his studies in Latin America make it clear that irreparable organic lesions result from the use of marihuana over a period of years. Finally, the botanist, Norman Taylor, who is not a supporter of the present prohibitive laws, admits that hashish is so potent, "that its continued use leads straight to the lunatic asymlum."[25]

The question of the permanency of the mental effects of marihuana remains open for investigation. More likely than not the earlier failures in finding such effects among subjects in this country resulted from the unavailability of chronic users of high quality marihuana which is a testimonial to the need for continued controls to prevent spread of this abuse. However, it has been rightfully observed that even if the effects of marihuana are temporary, a user "may 'temporarily' be out of his mind for the whole of his lifetime if he smokes up-to-six marijuana cigarettes daily . . ."[26] which is generally conceded to be the average habitue's consumption in this country.

The relationship of crime to marihuana use is another hotly contested issue. It has long been held that marihuana is linked with crime and other types of antisocial behavior. What is less clear is whether the criminal conduct results from actual neurological changes brought on by the use of the drug or whether the drug's consumption merely aggravates pre-existing criminal tendencies. Those who have studied this question domestically find it difficult to reach a conclusion. Thus, Kolb claims that marihuana "may cause criminally-inclined persons to commit crimes, but its potency as an instigator of crime has not been measured or demonstrated in the United States, because of its limited use."[27] On the other hand, studies made in New Orleans showed that the number of marihuana users among major criminals was very high.[28] The files of the Bureau of Narcotics are replete with crimes of violence perpetrated under the influence of marihuana.[29] Again the studies made in other countries where higher grades of marihuana are more readily available show an alarming incidence of use among the criminally insane.[30]

Even the LaGuardia report of 1944, which is so often cited as support for the harmlessness of marihuana, found that in a limited number of test subjects:

> ". . . there were alterations in behavior giving rise to antisocial expression. This was shown by unconventional acts not permitted in public, anxiety reactions, opposition and antagonism and eroticism. Effects such as these would be considered conducive to acts of violence."[31]

and further that:

> "The conclusion seems warranted that given the potential make-up and the right time and environment, marihuana may

bring on a true psychotic state."[32]

Moreover it is important to note that these observations were based on the study of subjects in a rigidly controlled environment and who were not themselves chronic users.

Of special significance is the investigation of Professor C.G. Gardikas in which he analyzed a group of 379 hashish-smoking criminals. He found that 117 of these became criminally inclined only after their habituation to hashish. Nevertheless they had between them more than 420 sentences for assaults, woundings, threats, robberies, manslaughter and sex offenses.[33] Wolff refers to various other reports from Greece, Turkey, Tunis, and Egypt which bear out this finding.[34] Wolff also lists a number of specific incidents taken from his own observations in Latin America. The explanation to which most authorities subscribe in their accounts of marihuana-induced crime, is that the drug causes psychotic episodes which result in personality changes. Typically, users may suffer from delusions of persecution. Many may believe themselves to be under attack when they commit aggressive acts. Crime in these subjects must be viewed as a result of the ensuing mental confusion and derangement that accompanies marihuana intoxication.

Also, the thesis that marihuana use results in criminal conduct in those who are predisposed to crime is valid. Thus, like alcohol, it may be used to bolster courage or it may simply trigger a latent desire to commit acts of violence. Two noted experts have pointed out that marihuana is particularly suited to the latter role:

> "Marihuana does not so rapidly produce motor in-coordination [as does alcohol], which means that the marihuana smokers may more frequently carry through criminal tendencies into action or perform impulsive acts more effectively. . . ."[35]

In the final analysis it is clear that marihuana may be causally associated with the commission of crimes in a number of ways, depending upon the variability of the strength of the dose and the underlying personality of the user. The important question for society is not in what manner marihuana causes crime -- the question is, how many crimes would not be committed but for the addition of this dangerous drug to the social environment. The available studies are suggestive enough of the risks involved in its use.

Another danger of marihuana which, although less spectacular is of considerable social significance, is the effect of the drug on the performance of complex tasks and particularly the operation of motor vehicles. Wolff says that numerous traffic accidents in Mexico and Cuba are attributed to the drug.[36] In a statement before the United Nations Commission on Narcotic Drugs, in 1963, the French delegation expressed its concern over the high rate of road accidents which appeared to be attributable to the abuse of drugs and "particularly cannabis."[37] In a report to the Commission in 1965, on this general question, it was noted that persons using heroin, morphine, and similar drugs are not likely to be using motor vehicles for a variety of reasons but that:

> "An exception may lie in the case of cannabis, which is more readily available and more widely used in several parts of the world. Light indulgence in cannabis may create euphoria without a desire to curtail all physical activity as mentioned in the case of more potent drugs."[38]

In a highly mechanized society such as our own, in which the number of automobile accidents has been described as "slaughter on the highways", the dangers of marihuana cannot be ignored.

One particularly grave danger of habitual marihuana use is that there is often a clear pattern of graduation from marihuana to the stronger addictive opiates. Those who seek personal well-being and exhilaration through the stimuli of drugs ultimately discover that the opiates have more to offer. This point has been disputed, of course, particularly in the case of student experimentation. Certainly, it is true that not all persons who ever smoked a marihuana cigarette have gone on to the use of heroin, but actual experience leaves little room for doubt that a large majority of addicts began their drug taking with marihuana. This cycle of graduation has been observed in the United States, the Near East and in Africa[39] though admittedly the exact causal connection is unknown. In a sample of 96 heroin users examined in the United States, 83 admitted to the use of marihuana prior to their addiction.[40] The World Health Organization has reasoned[41] that one factor in the progression from marihuana use to heroin use is that once a person begins using marihuana, he aligns himself with the criminal fringe where all forms of drugs may be available, and if he is so disposed to seek pleasure in stronger drugs, he has a ready source of supply.

The most recent review of the subject is that of P.A.L. Chapple who studied 80 English heroin addicts. He found that 70 of these had first used marihuana and apparently considered its effects to be second only to those of heroin.[42] They themselves expressed surprise at the finding, but were not deterred in their intention to return to marihuana use since it was not addicting! In studying these patients Dr. Chapple was led to the conclusion that the connection between marihuana and heroin could not be accounted for simply on the basis of the "mutual influence of availability in illegal society . . ."[43] and he warns "that there may be greater dangers in cannabis . . ." than some observers currently express.

In conclusion, it is clear from the examination of the great bulk of authoritative opinion, that the permissive use of marihuana would result in irreparable damage to the health and well-being of society. Those few who advocate its legalization, do so on the basis of the most general and unrepresentative data. They tend to characterize supporters of the laws as "puritans preaching against that ole devil marihuana." They sorely neglect the public health aspects. When one considers the recent volume of criticism to which the Federal Government was subjected for failing to actively insure that new medicines and drugs were reasonably safe for medicinal use, it is difficult to comprehend that informed persons would advocate free access to a substance containing such active and powerful drugs, and all for the sake of gratifying some misguided desire for a new "kick". In an area which may have such far-reaching and permanent effects on the culture and mores of our communities, it would be sheer irresponsibility to ignore the plain meaning of the accumulated evidence.

Accordingly there is little doubt of the need to control the dangerous drug, marihuana, and to control it in the best possible way. It is less important that the drug is controlled under the definition of a narcotic by the state laws or under the taxing powers of the Federal Government rather than under the commerce clause of the Constitution.

What have the laws accomplished? There may never be an absolute answer to the addiction problem -- perhaps it may not be in the nature of social problems that there is such an answer. But, this does not mean we should substitute myth for experience -- we cannot indulge in hopeless speculation about how easily the problem could be resolved without our system of controls. I can only say in passing that I abhor thinking what the problem of drug abuse would be today had there been no controls.

In the past, the Bureau of Narcotics has always pursued a policy of vigorous law enforcement. We intend to continue doing so. I do not mean, of course, that prohibitions and good law enforcement are the answers to the drug abuse problems. We need a great deal of help. There is a need for more conferences of this type. There is a need for educators to evaluate their roles and to formulate a proper and effective educational program of anti-drug abuse. By all means, I hope we never give the impression to a youngster toying with the use of drugs that he may proceed with the understanding that he is exceptional or misunderstood, or a frustrated person "trying to find himself" who is merely taking up a crutch to help him limp along in the face of adversity. There is a dire need to retain in our society a harsh concept against drug abuse, because such a concept has a very important preventive value.

Enforcement officers need the support of students and faculty at the colleges and universities. We have been cooperating with many school officials and have furnished assistance by breaking up a local trafficking problem without fanfare and doing it before it became a blot on the school's reputation. I have good reason to believe that this conference will lead to even more co-operation in the future.

References

3. 21 U.S.C. 171-185.

4. 21 U.S.C. 4741 et seq.

5. 21 U.S.C. 188-188n.

6. 21 U.S.C. 501.

7. Anslinger and Thompson, The Traffic in Narcotics, Funk and Wagnalls, p. 318.

8. Colorado v. Stark, et al, No. 21394, April 12, 1965.

9. D. P. Ausubel, Drug Addiction, p. 97 (1958).

10. P.A.L. Chapple, Cannabis, A toxic and dangerous substance - A study of eighty takers, Br. J. of Addiction, p. 279, Vol. 61 (1966).

11. The Evening Bulletin, Philadelphia, June 2, 1966.

12. K. L. Stuart, Ganja (Cannabis sativa L.), A Review, W.I. Med. J., p. 159, vol. 12 (1963), 156-60.

13. Eddy, Halbach, Isbell, Seevers, Drug Dependence: Its Significance and Characteristics, Bull. Wld. Hlth. Org., p. 728, 729, vol. 32 (1965), 721-733.

14. Donald Louria, Nightmare Drugs, p. 32 (1966).

15. G. Joachimoglu, Natural and Smoked Hashish, Ciba Foundation Study Group No. 21, HASHISH, Its Chemistry and Pharmacology, p. 5 (1965).

16. P. O. Wolff, Marihuana In Latin America, The Threat It Constitutes, p. 8 (1949).

17. Report of the Subcommittee on Narcotic Addiction, The Dangerous Drug Problem, New York Medicine, vol. 22, No. 9 (1966).

18. Ibid., p. 3.

19. Supra, note 6, p. 36.

20. Supra, note 6, p. 18, 19.

21. Robert S. deRopp, Drugs and the Mind, p. 97 (1957); Erich Hesse, Narcotics and Drug Addiction, p. 93 (1946); and Supra, note 5, p. 19.

22. Supra, note 1, p. 98.

23. Manchester Evening News and Chronicle, Manchester, Oct. 31, 1966; Los Angeles Times, Los Angeles, Oct. 30, 1966.

24. Goodman and Gilman, The Pharmacological Basis of Therapeutics, p. 174 (1960).

25. Norman Taylor, Narcotics, Nature's Dangerous Gift, p. 15 (1963).

26. Carter McMorris, What Price Euphoria? Medico-Legal Journal, p. 77, vol. 34 (1966), 74-79.

27. Lawrence Kolb, Drug Addiction, p. 23 (1962).

28. Walter Bromberg, Marihuana: A Psychiatric Study, p. 19 (1939).

29. Anslinger and Tompkins, The Traffic in Narcotics, pp. 22-26 (1953); James C. Munch, Marihuana and Crime, U.N. Bulletin on Narcotics, vol. 18, No. 2 (1966).

30. Ibid., p. 18.

31. The Marihuana Problem in the City of New York, The Mayor's Committee on Marihuana, p. 215 (1944).

32. Ibid., p. 51.

33. C. G. Gardikas, Hashish and Crime, p. 5 (1950).

34. Supra, note 8, p. 27.

35. Maurer and Vogel, Narcotics and Narcotic Addiction, p. 245 (1962).

36. Supra, note 8, p. 31.

37. U.N. Doc. E/CN. 7/L.268, Statement by the French Delegation, May 14, 1963.

38. U.N. Doc. E/CN.7/481, Effects Of The Use and Abuse Of Narcotic Drugs On Accidents In General And On Road Accidents In Particular, Sept. 14, 1965.

39. Supra, note 25, p. 245.

40. Chein, Gerand, Lee, Rosenfeld, The Road to H, p. 149 (1964).

41. Supra, note 5, p. 729.

42. Supra, note 2, p. 273.

43. Ibid., p. 276.

DRUGS AND YOU[1]

Hal W. Chauncey
Laurence A. Kirkpatrick

"It's not as bad for you as booze or tobacco."

Whenever people are talking about pot, this remark is almost sure to come up. It is usually said with a great deal of conviction, as though it were a scientifically proven fact. How much truth is there to this judgement?

In the first place, none of these substances -- tobacco, alcohol, or marijuana -- is good for you or for anyone else. All have their dangers. No one, not even people who smoke and drink, will deny this. Everyone who has investigated this field agrees that people would be far better off if they avoided all three. And this applies particularly to young people. So the statement that the pot habit is "no worse" than the two other bad habits is meaningless.

Let's make a detailed analysis of the effects of pot as compared with the effects of alcohol and tobacco. From the following charts you will be able to conclude that the statement, "It's not as bad for you as booze and tobacco," has no basis in fact.

Alcohol Compared with Marijuana

ALCOHOL	MARIJUANA
1. Alcohol is a depressant; that is, it slows down physical and mental activity.	1. Marijuana is a hallucinogen that has both depressant and stimulant (activity-raising) effects.
2. With toxic doses (those which are heavy to the point of danger), the drinker "passes out" into complete immobilization (sleep or unconsciousness).	2. With toxic doses, the marijuana smoker often shows highly active behavior. He may have psychotic ("crazy") reactions of varying degrees.
3. A great many people are able to use alcohol in moderation. An individual may have an occasional drink without any effect on his normal behavior.	3. It is difficult to use marijuana moderately because the smoker must become intoxicated to get the desired effect. The sole purpose of smoking pot is to feel "high". Thus the marijuana smoker should not be compared with the social drinker but with the confirmed "drunk".

---

1. Excerpted from Drugs and You, by Hal W. Chauncey and Laurence A. Kirkpatrick. New York and Los Angeles: The Oxford Book Company, 1969.

ALCOHOL	MARIJUANA
4. In the case of a heavy drinker, alcohol is a truly addictive drug; the body demands regular doses of alcohol.	4. Although marijuana is not physically addictive, the smoker becomes addicted psychologically and emotionally.
5. Alcohol is relatively expensive. Several drinks are normally required to intoxicate a person.	5. Marijuana is cheap; one cigarette costing less than a dollar can intoxicate three or four people.
6. Alcohol is fully legal in most areas, although it is closely regulated in many ways (for example, in regard to sale to minors). Being drunk (under the influence of alcohol) usually carries little penalty.	6. Being in possession of marijuana or under its influence is a serious charge in most states. The penalty for a felony conviction may be severe.
7. Even a heavy drinker does not look for stronger forms of alcohol to satisfy his cravings.	7. A major problem to the pot smoker is that often he will not remain satisfied with the "high" that marijuana brings but will look for stronger drugs.
8. Alcohol has no use as a so-called "mind-expander" or as a means for pseudo-religious rituals.	8. Marijuana smokers claim the drug is a "mind-expander" and often use it in connection with cults and pseudo-religious groups.
9. Students don't usually drop out of school because of the use of alcohol.	9. A great many students who smoke marijuana drop out because of their smoking. One estimate is that in some areas of the country 50% of all dropouts smoke pot.
10. Alcohol usually does not have an immediate effect on the drinker.	10. Marijuana has its effect on the smoker as soon as it is smoked.
11. Drinking is not against the law. Thus, there is no need for a drinker to associate with criminals or with persons of unsavory reputation.	11. Anyone who smokes pot is breaking the law and is thus technically a criminal. In addition, continued use of marijuana always places the smoker in close contact with criminals, usually narcotics sellers.

ALCOHOL	MARIJUANA
12. Drinkers do not reject or refuse to associate with nondrinkers.	12. Pot smokers almost always avoid non-users as friends. Among other things, the smokers are afraid of being reported to the police.
13. Too much alcohol gives the drinker a "hangover". Since this is extremely unpleasant, most people tend to be careful about the amount they drink.	13. Marijuana causes no "hangovers". It can be smoked heavily without such symptoms as headaches, upset stomachs, etc.
14. Alcohol does not increase the appetite markedly. Heavy drinking may kill the appetite.	14. Marijuana does increase the appetite for food.
15. Drinking alcohol does not make a person lazy--at least not after the effects of the alcohol have worn off.	15. The long-time user of marijuana becomes lazy and shiftless. He is likely to care little about his future or anyone else's.
16. Moderate use of alcohol does not usually affect a person's ability to hold a responsible job.	16. Few, if any, employers would knowingly keep a pot smoker in a position of responsibility.
17. The drinker knows fairly well the strength of what he is drinking; the government sets exact standards for all alcoholic beverages.	17. The pot smoker never knows how strong or weak the marijuana is, since there is no control, and the plant strength varies widely.
18. There are many elderly people who have drunk moderately for many years.	18. The old pot smoker is a rarity; it is a habit of young people. Smokers either quit while still young, or go on to "harder" narcotics.

Tobacco Compared With Marijuana

TOBACCO	MARIJUANA
1. A person can smoke tobacco without any interference with normal activities.	1. It is all but impossible to smoke marijuana and carry on a normal way of life.

TOBACCO	MARIJUANA
2. Tobacco has little effect on the mental or emotional reactions of the smoker.	2. The entire purpose of marijuana is to affect the mental and emotional reactions.
3. It is now known that smoking tobacco (especially cigarettes) has many harmful effects on health. Cancer of the lung and heart ailments are among the most common results of heavy smoking. Smokers have a considerably shorter life expectancy than nonsmokers. (See Chapter 8.) However, the harmful effects of tobacco develop slowly. Usually a person must smoke for years before the illnesses mentioned make their appearance.	3. The harmful effects of marijuana on the body show up slowly. These effects are laziness and loss of energy, with a possibility of brain damage after years of smoking. The effects of marijuana on the mind show up instantly in the actions of the user.
4. There is no pressure on the smoker to use "stronger" tobacco.	4. Marijuana salesmen normally "push" other, stronger drugs.
5. Tobacco smokers do not attempt to get others to start smoking.	5. Most marijuana smokers are "missionaries" and try to get others to use pot.
6. Smoking tobacco does not make young people drop out of school.	6. Most students who smoke pot regularly drop out of school.
7. It is a rare tobacco smoker who will attempt to tell you that tobacco is "good for you." Most users of tobacco are more or less aware of its dangers.	7. Pot smokers usually speak glowingly of the habit and strongly advise others to try it.
8. People who hold highly responsible jobs (surgeons, airline pilots, teachers, etc.) are not affected in their duties by smoking and do not endanger the well-being of the people depending on them.	8. Marijuana smokers have little control of their emotions and their physical functions. It is impossible for them to perform a responsible job properly while "on pot".

TOBACCO	MARIJUANA
9. Smoking tobacco doesn't lead to any type of behavior that the smoker would otherwise tend to avoid.	9. Pot smokers tend to lose control of their emotions. Almost all heroin addicts took their first "fix" while under the influence of marijuana.
10. There are many elderly smokers.	10. There are very few old pot smokers; most of them quit young or "graduate" to stronger drugs.

MARIHUANA AND CRIME[1]

James C. Munch, Ph.D.
Member, Advisory Committee,
U.S. Bureau of Narcotics

Study of the literature on Cannabis sativa indicates differences of opinion among various authors, largely due to improper conclusions from inadequate evidence. This confusion was evident a score and eight years ago today when the testimony before the Seventy-fifth Congress led to the enactment of "The Marihuana Tax Act of 1937," which became effective 1 October of that year. My personal interest in marihuana, the present designation in the United States for Cannabis sativa, antedates this Act, since I had been invited by Commissioner Anslinger to participate in a series of conferences held by the Bureau of Narcotics. I had undertaken some pharmacological and chemical studies in an effort to determine and detect the product in drug preparations, as well as in animals and man, and had the privilege of joining Commissioner Anslinger in testimony before one of the Congressional Committees which drafted this Act. I have followed this further in recent years, not only in the publications of the Bulletin of Narcotics, but in the world literature in general. Additional information has tended to clarify many misconceptions.

Scientifically it seems desirable to define our terms. "The term "Marihuana" means all parts of the plant Cannabis sativa L., whether growing or not; the seeds thereof; the resin extracted from any part of such plant. . . . " [The Marihuana Tax Act of 1937, Section 1(b)]. Webster's Dictionary (26) carries a number of definitions on crime, of which the most pertinent would appear to be "2. An omission of a duty commanded, or the commission of an act forbidden, by a public law." The term crime is hardly a technical term at common law, but is essentially defined in many of the penal codes in the United States as "an act or omission forbidden by law and punishable upon conviction by (1) death; or (2) imprisonment; or (3) fine; or (4) removal from office; or (5) disqualification to hold or enjoy any office of trust, honor or profit under the State; or (6) other penal discipline."

Much of the confusion regarding the effects produced by marihuana has been the result of petty quibbles regarding the causation of "addiction" or "habituation". This situation has been clarified by the WHO Expert Committee on Addiction-Producing Drugs, in their thirteenth report No. 273 in 1964 by suggesting replacement of both terms by:

"Dependence . . . defined as a state arising from repeating administration of a drug on a periodic or continuous basis. Its characteristics will vary with the agent involved and this must be made clear by

---

1. Based on a speech before International Narcotic Enforcement Officers Association, 1 October, 1965, Fontainebleau Hotel, Miami Beach, Florida.

designating the particular type of drug dependence in each specific case."

By making this distinction the consensus of opinion is that the use of marihuana, whether taken by mouth or more commonly smoked, does produce "drug dependence". This meets the objections that have been proposed by psychiatrists, among others, that it does not produce addiction similar to that resulting from use of opium and its derivatives.

Based upon personal observations, and discussions with representatives of the bureaux of narcotics in Canada, United States, Mexico, Great Britain, Denmark, Sweden, Holland, West Germany, Switzerland, France, Belgium, Turkey and India, I have prepared a summary of the pharmacology of marihuana (Table 1). The conclusions from the available evidence are my personal responsibility and are not necessarily the opinions of the responsible officials in these bureaux.

Available information suggests that different races of people vary in their susceptibility to marihuana, as to all other drugs. It would appear that detailed studies among certain classes of individuals indicate that marihuana may be directly associated with various crimes, whether as a result of a primary cause, or of liberation of inhibitions. Some evidence is presented that individuals may have criminal tendencies prior to the use of marihuana, which are exaggerated after continued use. It has also been suggested that many users, dissatisfied with the responses obtained after using marihuana, discontinue it, and start using heroin, morphine or cocaine. In his outstanding text Walton ascertained that 44 per cent of 58 heroin addicts in New Orleans began their drug career by smoking marihuana.

A number of reports have indicated some connection between various crimes and the use of marihuana. The Chopras made a study of 1,500 cases, of whom 600 in a mental hospital had been using cannabis. A substantial proportion were also arrested for crime. Fossier reported that 125 of 450 prisoners in New Orleans at ages between 18 and 31 were marihuana addicts. Since one-fourth of the total prisoners arrested were addicted to marihuana, he reached the conclusion that "marihuana is a real menace to the community". Similar observations were reported by Lambo, among others.

Among the more detailed investigations of the relationship between marihuana and crime is the work by Professor C. G. Gardikas, Head of the Greek Criminal Service in Athens. His Service surveyed 374 individuals during the period between 1919 and 1950, who were either sentenced or arrested for using hashish publicly. The individuals were divided into three categories: Group (A) included 117 individuals who had neither been sentenced nor arrested for a crime prior to this arrest, and who subsequently were repeatedly sentenced for violent crimes. Group (B) included 53 individuals who had neither been sentenced nor arrested prior to the use of marihuana, and who were subsequently arrested for dishonesty or vagrancy. These groups were combined in the accompanying table 2, showing that the 170 persons received a total of 1247 sentences after the use of marihuana. Of these, 697 sentences were imposed, of which 162 were for violent crimes, 333 for dishonesty, and 137 for vagrancy. By contrast, Group (C) included a total of 204 persons who had been arrested for various crimes previously; and who were re-arrested or resentenced later for intoxication after using marihuana. This permitted contrast of the criminal behavior of these 204 individuals, as shown in the second and third columns of table 2. It is noted that the total number of sentences increased from 758 to 1,674; violent crimes increased from 142 sentences to 236; dishonesty from 398 to 517; and vagrancy from 37 to 139. Among these 204 persons were 22 on whom more specific records were obtained. The total number of their sentences increased from 91 to 331. Sentences for violent crimes increased from 6 to 70; dishonesty almost doubled; and vagrancy increased about four times. Gardikas pointed out that it was difficult to stipulate how much of the criminality was due to psychic constitutional inferiority, but the figures definitely indicate increase in the number of sentences following smoking of marihuana.

Through the kindness of Commissioners Anslinger and Giordano of the U.S. Federal Bureau of Narcotics, an opportunity was afforded to review various authenticated Case Reports in the files of the Bureau as typical of the relationships of various crimes committed by individuals after use and while under the influence of marihuana (usually smoked). As representative, Table 3 reports details on 69 such cases. This objective evidence supports published statements of the association between the use of marihuana and various types of crimes.

The most recent information received from the United Nations Commission on Narcotic Drugs dealing with illicit traffic in Brazil summarizes the situation well. During the four-year period from 1961 to 1964, nearly ten tons of drug in the illicit traffic were seized. The report states: "The addict is soon a useless and harmful member of society. His anti-social behavior is a common phenomenon. There were cases of addicts beating up their parents, attacking younger brothers and sisters . . . killing those they loved best . . . they will not work but turn to petty thieving and robbery to keep themselves alive. . . ." Investigations by two experts confirmed a connection between homicide or robbery and the use of marihuana.

Summary

Literature surveys and personal contacts have clearly demonstrated the association between the use of marihuana and the commission of various crimes.

Note

Since the above was written, two important contributions have appeared:

1. The United Nations Secretariat has published under the title "The question of Cannabis" a 250-page bibliography dealing with cannabis, which was presented to the twentieth session of the Commission on Narcotic Drugs under the document symbol E/CN.7/479, 15 September 1965. Dr. Nathan B. Eddy, Consultant on Narcotics, Department of Health, Education and Welfare, National Institutes of Health, Bethesda, Maryland, U.S.A., prepared a very helpful Index to the more than 1800 entries.

2. A Study Group on Hashish met in London on 21 October 1964, in which 26 members participated. Its proceedings were published by CIBA Foundation, under title of "Hashish -- its chemistry and pharmacology," in 1965. The discussions amplify the information in Table 1 on the pharmacology of this drug. They confirm a drug dependence and relationship of usage of cannabis to various crimes. The chief of the laboratory of the Division of Narcotic Drugs of the United Nations, confirmed the need for identifying cannabis users by testing of biological fluids such as urine or blood. Such a test is still desirable, but some progress has been reported in thin-layer chromatography.

Table 1

Pharmacology of Marihuana

---

1. External

   Yellow stain smoker's fingers. Cold extremities. Hypersensitivity sensation of ants running over skin.

2. Gastrointestinal tract

   No effect on taste. Increase thirst and appetite. Large doses: Nausea, emesis, diarrhea or constipation.

3. Nervous system

   Hallucinations, delirium, alternate laughing and crying. Chronic exposure produces brain lesions.

4. Circulation

   Small doses tachycardia (increasing with dose to rate of 120 per minute or more). Blood pressure unchanged or slight fall. Hypoglycemia (decrease in blood sugar). Slight anemia with chronic use. Death by cardiac failure some individuals after 100 to 200 times therapeutic dose.

5. Respiration

   Rate usually decreased. Coughing after smoking. Death may follow respiratory failure some individuals.

6. Muscular system

Incoordination with therapeutic dose. Larger doses produce spasm of contracting muscles.

7. Eyes

Mydriasis (marked dilation). Blood shot conjuctivae (often diagnostic). Tears.

8. Glands

Diuretic. Alleged aphrodisiac.

9. Toxicity

Reported oral lethal dose to man: charas 2 grams/kg.; ganja 8 grams/kg.; bhang (powdered dried leaves) 10 grams/kg. (approximately 1 teaspoon per pound). More toxic when smoke inhaled.

Antidotes

Acid drinks, coffee, or caffeine; emetic.

10. Elimination

Not detected chemically in urine.

11. Drug dependence

Definitely established. Question under old definition addiction.

Table 2

Relation between hashish and crime in Greece

	Groups A + B	Group C			
		Before	After	Before	After
No. Persons	170	204		22	
No. Sentences	1247	758	1674	91	331
Violent (a)	162	142	236	6	70
Dishonesty (b)	333	398	517	59	98
Illegal Possession Arms (c)	65	45	71	4	14
Vagrancy (d)	137	37	139	12	50
Total Sentences (a)+(b)+(c)+(d)	697	622	963	81	232

Table 3

Cases of crime in the United States after use, and under influence, of marihuana

Year	Place of Offense	Sex	Age	Details	Outcome
Assault and Battery:					
1938	Chicago	M		Broke nose J.N. by striking with gallon clay jug and pulled knife. Police officer then destroyed growing crop nearby.	Arrested
1937	Chicago	M	24	Attacked woman.	Arrested
1940	Boston	M		Assaulted woman; held up auto co.; beat woman stole $3 and jewelry; beat Miss C. stole $75; negro shot Sgt. Cullinen, fled thru back alley; trapped by Sgt. Cannon, so shot self in head, blinded. This started concerted drive Boston vs. marihuana; several major violators arrested.	Hospitalized, arrested
1937		M		Assaulted police officers with dangerous weapon while under influence of marihuana.	Arrested
1935	New Orleans, La.	M		Violently attacked officers with knife and revolver while being arrested for possession of marihuana.	Arrested
1953		M		First violator Marihuana Tax Act for illegal possession, penitentiary W. Va. 10 years; released; felonious attack with hatchet.	Re-arrested
1944	Houston, Texas	F		Slashed Miss M. Jolly, 18, in quarrel over sales and boys; 3 girls and 6 boys in gang smoked marihuana to get "hopped up" before committing various crimes.	Arrested
1935		M	30	Assaulted 10-year-old girl; admitted being	Hanged

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
				under influence marihuana, so "crazy"; convicted in court trial.	
1936	San Antonio, Texas	F		Two young women arrested for possession marihuana violently attacked Officer C. Cullen.	Arrested
1939	Modesta, California	M		Assaulted a housewife.	Sentenced, 50 years
1939		M		Threw glass at bartender while smoking marihuana just bought from peddlar.	Arrested
1939		M	39	Assaulted and shot another man in controversy while both smoking marihuana.	Convicted
Bigamy:					
1938		M	22	After smoking 2 marihuana cigarettes, married waitress, altho already married and with 3-year old child. Everything went blank, and he had no control.	Arrested
Burglary:					
1938	Winona, Minn.	M		Smoked marihuana for years; held up 3 taxi-cabs.	Sentenced, 10 years
1953		M		Attempted robbery diner; has 16 marihuana cigarettes plus one butt; admitted being confirmed user.	Arrested
Murder:					

Table 3 (Continued)

Year	Place of Assault	Sex	Age	Details	Outcome
1921		M		Beat to death with a rock T. Bernhardt, boy, 14, while herding cattle in pasture; accused boy of polluting his water supply. Boy's head crushed, one eye gouged out, and missing. Arrested several hours later, he screamed and tore jail furnishings. Smoking marihuana at time; claimed insane; found to be sane.	Hanged
1944		M	39	Murdered Ga. Castenada, 29; mutilated her hips and head with razor blades, then castrated self; had been smoking marihuana for an hour before attack.	Arrested, hospital, jail
1948		M		Murdered widow, 60 years old, with accomplice, to obtain money to buy more marihuana for both; confessed attacking and robbing 16 other women.	Arrested
1937	Ohio	M		First degree murder, blamed on smoking marihuana.	Arrested
1964	Houston, Texas	M	45	Negro shot and killed E. Sampson, Negro, in argument over dice game. Both were marihuana users.	
1948		M		Negro, smoked marihuana before going out to commit various crimes including murder Mrs. I. Koogle. "Poor man's poison."	Electrocuted
1949	Cleveland, Ohio	M		Negro, long criminal record Kentucky, narcotics and manslaughter, murdered barracks mate J. MacElroth at marihuana-cocaine party.	Arrested

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
1953		M		Negro, shot and killed while attempting holdup grocer in Harlem; plea guilty.	Arrested
?	La Jolla, Calif.	M	16	Paroled juvenile delinquent, under influence smoking marihuana, murdered Mrs. I. MacKeown, 67, grandmother, inflicting 35 knife wounds. She called him marihuana user and threatened to call police.	Arrested
1964	Houston, Texas	M		Negro, stabbed Negro A. Grimes, 30, to death; motive unknown; marihuana user.	Arrested
1936		M		Charged with murder; offered defense he was under influence marihuana at time.	Arrested
1940	Del Rio, Texas	M	30	Shot and murdered his 34-year-old sweetheart, A. Antonia, also M. Gomez, nurse. Then inflicted stab wounds his throat, stomach, intestines, heart, genitalia. He had previously committed rape on 12-year-old girl, and was free on bail awaiting new trial.	Death
1950	Fresno, Calif.	M	26	Took 17-mo. old J. Yanez from auto, spanked her for crying, shoved her face into mud 200 feet from car; suffocated. Didn't know what happened until blood spots found on shoes and clothes next morning. Blamed marihuana and whisky. His counsel stated: "The real criminal in this case is marihuana."	Executed in gas chamber
1960	Seattle, Wash.	M		Negro killed wife, then committed suicide. 76 more marihuana cigarettes found in his service station.	Suicide

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
1933	Tampa, Florida	M		Murdered his father, mother, sister and two brothers with an ax, while under influence of marihuana. Didn't know of all this until next morning.	Arrested
?		M		Smoked his first 2 marihuana cigarettes; jumped 18 feet from hotel window onto adjacent garage roof barefooted, burst into Mr. K's room, said, "God told me to kill this man," and beat him to death with fists. Then screaming he was Hitler, jumped thru window 30 feet to pavement, breaking ribs and legs. No recollection in court.	Sentenced, 20 years
1964	Mexico City, Mexico	M		Murdered N. Najera in penitentiary by striking on head repeatedly with ax. Argument over who would control marihuana traffic in the penitentiary.	Death
1939	Seattle, Wash.	M	26	Negro, crazed by smoking marihuana, attacked a Greek railroad pensioner, J. Karakinikas, 74, with his bare fists; death. Plea guilty. Smoked 2 marihuana cigarettes at time.	Sentenced, 10 to 20 years
1943	Oklahoma City, Okla.	M	27	Hotel bellboy shot and killed elderly guard J.S. in Federal Building, bit 1 of 3 sailors on street, struck small boy; when guard called, took away his gun and killed guard; off singing down hall. Another fight, subdued, taken to jail; amnesia next morning. Previously quiet, well-behaved.	Sentenced, 10 years
1937	New York	M	39	While both smoking marihuana cigarettes, shot and killed room-mate G. Senical, who wanted to borrow $20 to buy heroin. Put	Arrested

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
				body in trunk to get rid of it. Arrested that night, had 20 marihuana cigarettes; had been selling in Miami restaurant before crime. Previous criminal record. "I was fearless after smoking marihuana cigarettes, but would not have done this without marihuana."	
1933	Wichita, Kansas	M		Killed in fight over marihuana.	Dead
1936	Wilmington, Dela.	M		Killed J. Rhodes while under influence marihuana.	Arrested
1948	New York	M	36	Puerto Rican choked and stabbed Mrs. V. Lotito, while under influence marihuana. A frequent user, he was married without his knowledge while under influence. He was violent, desperate criminal and habitual user.	Arrested
1954	Chicago	M	27	Shot and killed G. Booris, 69, in lunchroom in Camden, N.J., during holdup for $21; then with R. Joaquin, also under influence, F. Crus threatened to shoot him.	Arrested
1937		F	25	Shot and killed bus driver while under influence, to rob him of about $5; jury trial with her accomplice, both guilty.	Life imprisonment
1955	Albuquerque, New Mexico	M		With companion J.I. created disturbance in rooming house; they shot and killed policeman F. Sjolander who killed him at same time. I. escaped but caught; tried; guilty.	Life imprisonment

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
1964	Houston, Texas	M		Stabbed and killed J. Ward, 24, in bar room fight; was marihuana user.	Arrested
Rape:					
1964	San Bartolo, Xaucalpan, Mexico	M		Attempted to rape woman, stabbed her and was shot by policeman while resisting arrest. Under influence of marihuana cigarette smoke.	Dead
1938	St. Joseph, Missouri	M	37	Smoked 2 marihuana cigarettes, then raped his 7-year-old daughter.	Death in gas
1953	Camp Gordon, Georgia	M	23	Indecent exposure 6 occasions to girls 10 to 12 years old; each time under influence marihuana; trumpet, musician; smoking marihuana over year.	Arrested
1937	Clarksburg, W. Va.	M	26	Negro arrested charge raping 9-year-old girl. True bill by Grand Jury.	Arrested
1937	Corpus Christi, Tex.	M		Raped his 7-year-old daughter.	Death
1939		M		Teenage, attempted rape G. Raloff under influence marihuana and bay rum.	Life imprisonment
1937	Oklahoma City, Okla.	M		Smoked marihuana 12 years. Arrested for raping his 13-year-old daughter. Previous criminal record: assault with knife; sale marihuana; assault with knife, vagrancy.	Arrested
1939		M	40	Raped G. Raloff, while under influence marihuana and bay rum and threatened to kill her children with knife.	Hanged
1960	Portland, Oregon	M	19	Raped 16-year-old high school girl; beat, broke jaw, knocked out upper teeth, in wooded area after beatnick party.	Arrested

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
1939	San Leandro, Calif.	M	20	Arrested after raping 5 women while under influence.	Arrested
1936		M		Raped 10-year-old girl, previous arrest for possession marihuana.	Arrested
1940		M	33	Forced his landlady, Mrs. M. deLisle to smoke marihuana, and frequently raped her.	Arrested
1937		M		And 6 others, M. and F., age 21-23, arrested Detroit, Michigan, for rape, theft, grand larceny.	Arrested
1938		F	28	Prostitute stabbed Mrs. M. O'Shannon for not cooperating Lesbian activities.	Arrested
1939	California	M	20	Raped 7-year-old girl.	Life, San Quentin, no parole.
Reckless Driving:					
1939	So. Milwaukee, Wis.	M		Drank brandy and smoked 2 marihuana cigarettes; arrested for reckless driving, speeding, injuring 4 persons before driving into a ditch. Mind blank at time of arrest.	Arrested
1936	Philadelphia, Pa.	M		Arrested for driving auto in reckless fashion; also possession marihuana.	Arrested
Robbery:					
1950		M		Robbed A. Litz in Weinberg Bakery of $5; resisted arrest; possession marihuana.	Arrested
1940		M		Stole gun from employer, held up, shot salesman stomach for not following instructions; attempted rape clerk; stole $75; Police tracked him down, so he shot himself.	Death

Table 3 (Continued)

Year	Place of Offense	Sex	Age	Details	Outcome
1953	Los Angeles, Calif.	M	18	Armed robbery M. Friedman, gun not loaded as afraid might hurt somebody; previous record stole money to buy heroin; had started smoking marihuana in Hollywood high school; 3 years reformatory; got worse.	Arrested
1957	Cincinnati, Ohio	M	28	Negro waiter, with C.J., 30; S.R. and G.G. all smoked marihuana cigarettes over 2 years; 5 counts armed robbery Cincinnati grocery stores.	Arrested
1940		M	21	Auto theft, after 9 thefts with armed robbery; robbed and shot druggist.	Sentenced, 25 years
?		M		With another Negro, M.G. arrested after committing 7 robberies under influence marihuana.	Arrested
1936	Pittsburgh, Pa.	M		Robbery and possession marihuana.	Arrested
1953	Bluefield, W. Va.	M	40	Attempted armed robbery Mrs. H. Poole; after seeing newspaper account, vaguely remembered it.	Arrested
1937	Cleveland, Ohio	M		With R.B. robbery and assault; guilty.	Arrested
1937		M		7 men, all under 20, terrorized and robbed Central Ohio area. 38 stickups in 2 months while under influence marihuana.	Arrested

NATURE AND EXTENT OF THE PROBLEM[1]

Richard H. Blum, Ph.D.[2]
Director, Psychopharmacology Project,
Institute for the Study of Human Problems
Stanford University

I am supposed to bring you facts, but what I bring is ignorance, and in that dilemma the only way I can resolve my anxiety is to share it with you. Perhaps we can grope together, for I am afraid the kind of data we have at the present time is not such that I can say, "Well, dear friends, here we are; and it is quite clear this is what we know, and tomorrow we may all go home to do A, B, and C and the problem will be solved." It "ain't" so, or at least as far as I can see it, it is not so.

First, I want to tell you, so that you can understand my biases and be forewarned about them, some of the kinds of things we have been doing in the drug research area, for it is important for you to know the kinds of limitations and blinders that I wear.

We have been involved primarily in studies of the social and psychological aspects of drug use. Some years ago we started by doing some cultural studies attending to the cultural context of alcohol use in Greece. Then we got interested in the problem of LSD use and did a series of studies on people using LSD, what they were like and why they were using it, what changes seemed to occur and what it meant to be using this drug.

Since drug use is not restricted to one drug or very rarely restricted to one drug, our LSD work was really a study of people who were involved in the "drug movement", as it can be called, or in the exploration of exotic drugs. That phenomenon has expanded so rapidly that whatever we studied three or four years ago is by now ancient history. As you know, in California especially, two years is a long, long time.

Another area we have been working in has been the study of the historical diffusion of drugs. We started with some of the earliest written records as well as with some of the archeological data, and we have been trying to trace how mind-altering drugs are diffused, what are the typical patterns of transmission and the kinds of settings into which a new drug is introduced. This work has been a source of reflection, and in a sense reassuring, for things are not so different now from what they were five hundred or even two thousand years ago, at least in some ways.

---

1. Paper presented at National Association of Student Personnel Administrators Drug Education Conference, Washington, D.C., November 7-8, 1966. The NASPA Drug Education Project is supported by Contract No. FDA 67-3, with the Food and Drug Administration, Dept. of Health, Education and Welfare.

2. Also, Consultant, President's Commission on Law Enforcement and Administration of Justice.

Another study we have been involved in has been a cross cultural study. Here we are interested in the characteristics of non-literate societies in which drug abuse occurs as opposed to the characteristics of societies in which drug use but no apparent abuse occurs.

We were also involved in some pilot studies of normal population drug use. To me a critical question is, what do ordinary people do? What is the norm? What happens? What is the convention in our society with reference to the use of drugs? When I say "drugs", of course I mean now explicitly psychoactive drugs, those drugs which alter mind and mood and cycles of sleep and wakefulness. Having done this other work, we have been involved in the last year in the studies of student drug use. These are under way but we now have only preliminary data.

So much for the kinds of things we have done; you can note what we have been interested in and can quite clearly infer the large areas of our ignorance and inattentiveness.

Now let me share with you, if I may, some of the troubles we run into when we are trying to assess student drug use, which is the common grounds that brings us together here.

First of all, what drugs are we interested in? We use the word "drug" and we use it rather loosely. "Narcotics" is an example of a word that is used atrociously. Do we care about aspirin, and do we care about tobacco, and do we care about medically prescribed barbiturates? Or do we care only about the exotic drugs, LSD, marihuana and heroin, which certainly represent a very small part of the spectrum of drugs which are available and are employed?

I know that Joel Fort, who follows me, will spend a great deal of time with you talking about each of these possible classes of drugs, and I suspect he will warn you that the classifications that we use are rather inadequate.

The drugs we have been interested in, in our college studies, have covered quite a broad range. We have been interested in the stimulants, the mild ones and the strong ones, in the analgesics and the opiates, in tranquilizers both mild and strong, in the psychoenergizers or anti-depressants, in the hallucinogens (which, by the way, rarely cause hallucinations), and we have been interested in the intoxicants. In addition, we can't help but be interested in tobacco since that is a very common addicting drug if we dare to use the word "addiction", itself so fraught with misunderstanding.

As I list these drugs, you see the trouble. It is a mixed bag. Sometimes we are talking about a group of chemicals which share a similar structure. Some other times we are talking about a popular name. Sometimes we are talking about a group of drugs which are defined by their presumed effect, and, as Dr. Nowlis so well put it, those presumed effects occur only under certain circumstances, only when the probabilities are running our way, for example when we have set up our experiment, social or clinical, in a way that we get the kind of drug behavior we expect.

A second problem that I face, and I think you face it with me, is getting adequate data once we know what drugs we care about. The problem here is simply talking to people. They often don't know what they have been taking. Certainly, over their lifetime they would be unlikely to know their exact history of drug use. Even if people do know at least some of the substances they have been taking, they may not be willing to tell you about it. Here, of course, you run into a problem which plagues psychiatrists and criminologists. Just because I am interested in asking doesn't mean they are interested in telling, and there are some very good reasons why they shouldn't be. So we can get under-reporting when we ask some students about what they really did yesterday or what it is they plan to do tomorrow.

Another problem which I face, which you may run into on your own home grounds, is access to institutions. For instance, we are trying to study high school drug use, yet it will be a cold day in hell when they let us in any high school to do our study -- and again for a lot of good reasons that you know, such as the fears of the board of trustees, the newspapers, and the community. It can be a curious combination of the left-wing and the right-wing ideologists ganging up, saying, "Don't you dare ask my kid anything which doesn't have to do with the date that George Washington chopped down the cherry tree."

In any event, we are not allowed to intrude on the private affairs of the students. Indeed, we have recently had the same thing happen in some of the colleges which we have approached. They have said, "Well, we certainly understand your interest in drugs, and we share that interest, but what if you found out?"

Given the premise we might find out and that some enterprising reporter might make some links -- links which we would try to prevent being made -- nevertheless, the schools have refused us permission.

I am not saying the reluctant college is wrong. I am saying we are living on many campuses in an atmosphere of politics and emotion. Feelings are so intense that people can be afraid to assess the facts. When that is the case we are in trouble, because if we cannot find out what is going on, then how can we possibly know what to do, and how can we possibly say, "Here is our problem or our non-problem." I suspect some of you on your own campuses will run into some trouble either in assessing drug use or perhaps in developing programs directed at drug problems.

Another problem we have, which is a technical one but which really interferes with much discussion, perhaps even our discussions here, has to do with the definition of "use". "He is a pothead. He is a user," meaning that a student, now age twenty, when nineteen did one evening, in company with others, illegally acquire and illegally possess marihuana and further did take three puffs of a "joint". That can be one definition of a drug user. Or again, "Yes, he is a real LSD user," which might mean that a student took LSD once two years ago and wouldn't touch it now for love or money. So it is that when we talk about use we have to be careful to specify what kind of use. Are we looking at a life-time pattern for one drug? Are we looking at a daily pattern or a weekly pattern for a variety of psychoactive drugs? Are we looking at what he expects to do tomorrow as well as what he did yesterday? Are we looking at the rather important pharmacological facts of when did he take it, how much did he take, by what route of administration did he take it, and how often with what result?

As we approach our college populations we are well advised to discriminate between those who have used an illicit or exotic drug in an exploratory fashion, and those people who are, if you will, "committed" users, the people whose lives are built around drug use. I think you will find the size of your two samples differs rather dramatically.

Later on when we talk about communicating to drug users, teaching students about drugs, we will have to keep in mind what kinds of drugs, what kinds of students, and what kind of use.

Now, assuming that we have found out, which we have not yet, but assuming the "as if" of what is going on on the campuses with regard to drug use, let us consider some of the premises upon which we are beginning to operate, one of which is that students, at least in some colleges, are using more drugs without medical supervision.

Our concern then is over the social use of drugs, in particular the exotic and illicit drugs, not alcohol or tobacco even though those are potentially dangerous indeed. From an epidemiological standpoint one should also ask, "Are students using more drugs in approved ways as well?" That is, are alcohol and tobacco more used than five years ago, or are medically prescribed drugs being used more often as well? One suspects that with increasing medical care and with the increasing reliance of physicians on pharmacotherapies that it may also be there is a simultaneous growth in the medical as well as in the non-medical employment of these substances.

Another premise which brings us together with a shared concern is that there are ill effects which are associated with drug use.

Another thing that many of us assume is that what is "bad" about drug use is not just a matter of physiological or psychological ill effects but, rather, that it is part of an unsettling social package. One sees illicit use occurring in association with other social trends in student behavior, trends not approved by some of us, trends which can jostle or shake us up a bit. It may be that the entire pattern of conduct "bugs" us and that student drug use is something on which we can focus our worries. Implicit in that worry may be our awareness that there are changes in values and standards which go beyond beards and sandals, changes which reflect fundamental challenges to social codes which adults hold and which the elders think students also ought to hold. Here we are asking ourselves, what is acceptable conduct? What _is_ an acceptable goal in life? What are acceptable means to those goals?

Unquestionably, student use of exotic drugs in any regular way does itself challenge conduct standards that many thought were pretty stable, standards one thought were going to stay with us for awhile.

Let us say that these premises which may account for college administration worry about drug use are correct. This is not to say they are, but let us act as though they were, at least until the data are in. Now let us consider the increasing frequency of drug use among students.

First I would point out that there are very clear differences among campuses in the extent to which exotic drugs are available, and there are dramatic differences in student attitudes towards the use of these substances. In one college in which we are doing a study we asked the people working with us there to find a sample of "hippies", the people who are using the stuff. They have been looking now for two or three months, and they do not have hippie number one. He does not exist. They found a lot of hippies who used to be, that is they used to be on campus, but they have left; and in this particular school, which is a very traditionally oriented and religious university, it seems to be the case that when the student begins to use marihuana or LSD it is part of a general life change. Perhaps he is rejecting a lot of values, and whether drug use is symbolic expressive or causal of later shifts nobody knows. Nevertheless the student seems not to stay there after he has started using pot or LSD.

In another school which is not more than fifteen miles away by crow or dilapidated bus we sat down in a coffee shop and we asked, "Do you know anybody who is using?" The guy looks at us and says, "How much do you want?" We say, "No, man, we don't want any," and he says, "What do you want to do then?" We talk awhile and he may say, "Yes, sure, I have some pot," and he pulls it out of his brief case, saying, "I try not to smoke it in class." Well, so much for campus differences.

In assuming that drug use is increasing among students to an unknown point, it is less and less easy to make generalizations about the characteristics of users; more different kinds of people are involved. In the old days, two years ago perhaps, one could propose that people smoke pot because they are rebellious characters, thumbing their noses at the system and trying dangerous behavior. That was all very fine to say as long as pot smoking was highly disapproved and had to be rebellious, but now when you have campuses where "X" number of kids are using pot and it is the thing to do, to at least say one has had it, and the student would be ashamed of himself if he did not, it would be foolish for us to assume that one particular kind of personality or attitude or social background is associated with what is now popular experimental behavior. That is to say on some campuses anyone can be expected at least to try marihuana regardless of whether he continues with that behavior later on.

We already have diversity in student conduct and we shall get increasing diversity. As we all know, the kinds of people who are going to be innovators and the kinds of people who are going to be followers are likely to be different from one another in many ways. So it is we must not lump the motives and personalities of student drug users in one common category. Diversity there will also be the rule.

A problem rarely mentioned and which, I think, we must call attention to when we accept our premise of expanding drug use, has to do with the role of physicians in contributing to the expanded use which we see. From our pilot survey we have some evidence that the people who became exotic drug users, and this tends to be a well-educated young sample in a normal population, had larger exposure to medical care. Their parents had been more interested in giving them drugs, and they had been more often taken down to the doctor when they were kids, and they learned to take drugs. They had become drug optimists, if you will, and I suspect many of us are drug optimists. We give a great vote of confidence to the pharmaceutical industry and to modern medicine. Many of us are taking their products, tranquilizers, barbiturates or what have you, and we expect to use them in our lives. We have learned to do that. So it is that we should not overlook the role of the physician as an instructor in drug use. There can be a carry-over, beyond what the physician or parent anticipates, but which is a natural consequence of the child having learned that drugs are to use. That in itself is part of our technological society. We believe we can control our insides with these little capsules. It is a very simple belief -- and a correct one in some ways -- yet its ramifications are immense. How could we expect our children not to take drugs if this is what we have taught them?

Let me illustrate. In our early LSD studies it was clear the drugs which were being used came from doctors, and they were then distributed socially to their friends and sometimes to their experimental subjects. Similarly on college campuses we find the doctor in the health service gives amphetamines and he gives barbiturates, and the kids will spread the extra ones around. We also have found kids with parents who are physicians, who are really tremendous suppliers on campus for almost everybody's needs. It is fun to play doctor, and it is nice to be good to your friend, and so prescription drugs get spread around. I remember Dr. Bruyn from U.S.'s health service telling about one college newspaper which had a big advertisement from the Student Health Service, which said, "Examination times are coming up, and if you want your amphetamines for staying awake, come in and get them."

With that kind of service provided I don't think any of us should be terribly surprised if our students get used to using drugs. But let us not blame the physician for what is going on. In our LSD study and in our historical diffusion studies, we find -- and it is not a surprise -- that people learn from their elders and from respected "opinion leaders". Watching the LSD diffusion one saw that it went from the experimenters and physicians down to graduate students, from them down to college students, and nowadays from them down to high school students. So it is that I think most children have probably learned about drugs from their parents who are carriers of the larger culture. I expect to find a relationship between student drug use and the frequency with which parents accept drugs and use them. Surprising as it may seem, it is not impossible these days to find parents using LSD and marihuana who pass it along to their kids, and sometimes, of course, it is vice versa.

Clearly, it is not just a student phenomenon we are looking at. If you will, let me share a little gossip with you. I heard about a high school where they busted about fifteen kids for marihuana use. The school administrators said, "Oh horrors, disaster has befallen our fair community. The kids are smoking pot. How will their parents react?" A terrible thing? Well, one of the parents, I was told, who was a church deacon and a very respectable fellow, was a supplier. Of course, I do not know how he reacted but I imagine he was very glad they did not find the supplier. In any event, we cannot be too quick about estimating the parental role in student drug use. This is not to say that I think most parents are smoking pot. Far from it, but some will be.

Let us examine the premise of risk with which we concern ourselves. I guess we will not embark on any program to control drug abuse unless implicit in the definition of abuse would be the notion that it is something bad, something dangerous, that it is worth our trouble stopping. Now what are the kinds of abuses with which we concern ourselves?

Things I worry about and I gather that you worry about are dependency, on the one hand, or addiction as it is sometimes called, crime, immorality, traffic accidents, psychosis, suicide, illness, some kind of physiological change, tissue or metabolic change either acute or chronic, personality changes of an undesirable sort, a shift in social conduct or values of what at least the larger society would say would be undesirable, or finally, I think the embarrassment, pain and tragedy of arrest for the individual or the embarrassment for his family or his institution.

We cannot be too fast in leaping to the statement that the kind of illicit drug use we are concerned with can be shown to lead to such things. Indeed, I have been struck by the lack of data about the relationship between risk and drug use.

Dr. Nowlis talked earlier about there being no specific drug effect within the range of normal dosage which allows a guy to still move around and talk. You can get a very specific drug effect. You give them twenty grains of a barbiturate and you can be sure of what is going to happen, but with the dosage range of a grain or a grain and a half the person is going to have a lot of behavior choice still possible. So when we consider risk we have to be concerned with a lot of other things going on in the person, in his background, in his situation which would account for the production or non-production of the dangerous behavior that we worry about.

Curiously enough, the drug for which we have the best evidence of risk, of danger, is alcohol. That is one drug about which I can confidently be quoted, saying, "Yes, that is a dangerous drug, we can show relationships to traffic accidents, to homicide, to suicide, and to disease." But, again, it is not just taking a drink, rather it is drinking in conjunction with other things -- background, personality, setting, and what have you.

There is a lot of nonsense floating around about the other drugs. For example it is quite clear that heroin use is illegal and associated with all kinds of delinquency but it is not at all clear that heroin use leads to crime, since it is the delinquents who use heroin in the first place. That they stay delinquent cannot be blamed either on heroin or on the law making heroin illegal.

These kinds of cautions must be kept foremost in our minds before we go leaping into the fray with warnings to kids about what is going to happen if they use such and such. Usually we do not really know. The whole problem of assessing risk has to be related to different kinds of people using a drug, dosage, kinds of circumstances, and so forth. Then, if we knew all of that, we could say, "Okay, Jack, if you take this drug in this way, here are the probabilities of it going sour." Given the absence of facts and yet given also our common sense that these powerful agents can do damage, one of the most important things to be aware of, it seems to me, is the sense of alarm which outweighs the evidence at hand. The public assigns very peculiar priorities to their worries about drugs and the most peculiar priority is to put heroin at the top of the list. There are very few college students who will ever take it, and there are fewer who would become dependent if they did.

Considering public alarm over student drug use, we cannot help but face the special risk which is generated by public anxiety itself, that is the risk of our being forced to be premature in our actions. We are all in a spot. The danger is that we will act impulsively when the parents call and say, "What are you doing? What kind of a university is that? I heard there is marihuana on the campus. Stamp it out!" The alarm is a demand upon us, yet we should be very cautious not to let emotion drive us into corners. Of course that is easier for me to say, for I am not an administrator. I am not on the end of the telephone which jangles all day with voices saying, "Do something!" Let us be aware of our own precipitous responses as a serious risk.

We talk about risks, but let us not forget that most of the psychoactive drugs employed these days are used because of benefits. We use barbiturates to go to sleep, we use tranquilizers to reduce agitation in hospital wards. We use aspirin to get rid of headaches. Or we use alcohol for pleasure. Let us not overlook the fact that there are benefits associated with use. If there were not there would probably be very few users and neither a pharmaceutical nor a liquor industry. And so it is that people enjoy marihuana and they enjoy LSD.

What we must do is to balance the benefits against the dangers, but in alarm let us not speak as though we were unaware of the reasons for the being of these substances. Of course, we should also not forget that some of the benefits are a placebo effect.

In summary, we believe that exotic drug use is increasing, and we know that risks as well as felt benefits are there. We care enough about our students to want to reduce any dangers they face, yet we hesitate to restrict their freedoms and indeed, we may be unable to restrain their conduct by any administrative action open to us. The question of the efficacy of disciplinary, punitive or controlling actions as a means of influencing drug use goes beyond the consideration of student conduct, extending to the current state and federal laws as well. Although I think one can show an influence of the criminal law on the supply and distribution of drugs and quite possibly on decisions initially to use or not to use a drug, I am dubious if the punishment-control method makes much of a dent upon the convinced or committed user group. If that is the case, it would mean that we do not lose much by our reluctance or inability to apply sanctions against drug use.

I think the course best open to us in dealing with student drug use is that to which we are -- in conjunction with our students -- all dedicated. That is education. We are all educators and we must have great hopes for knowledge as a means of guiding lives or we would not be in the business. Why not then remain consistent to our calling and to our beliefs -- or even our mythology if it be that -- and emphasize fact-finding and information-giving as means to acquaint students with the significance and effects of exotic drug use? We can also be aiming, as we do in much of what is education for civilization, at the development by students themselves of group norms and inner standards which sensibly guide their conduct.

I further suggest that educational efforts not be limited to students alone, but directed at the drug gatekeepers. Here I mean physicians, parents, pharmacologists in our laboratories, our campus professors and the graduate students, for I suspect we shall find that with each new socially used drug that these people will be at the channels for learning attitudes, use, and sources of supply. If we want to have an impact we must be talking to those who are models, those who are the opinion leaders for them -- and that is as it must be -- for education is a business of exchange, a dialogue, not a one-way street.

THE ROOTS OF STUDENT DESPAIR[1]

Seymour L. Halleck
Director of Psychiatry
University of Wisconsin

American college students are troubled, even more so than the adults who are appalled by the extremes of student behavior. At the University of Wisconsin, where I am director of student psychiatry and a professor of psychiatry, 800 students a year flock to the psychiatric clinic. Even greater numbers use our counseling facilities, and hundreds more turn to private psychotherapists. Wisconsin is not atypical. The same sorry story is reported at one school after another.

Psychiatrists on university campuses are in a unique position to study, in depth, the roots of student unrest. Today, our experience goes far beyond contacts with the highly disturbed or eccentric student. We are dealing with a significant minority of students. The experience has not made me, or other psychiatrists with whom I have discussed the problem, optimistic. Most university psychiatrists are alarmed by many aspects of the new generation of students. In general, most adults find it almost impossible to view college students dispassionately.

The very idea of a privileged generation protesting seems outrageous. Students do seem, at least superficially, to be having more fun than ever. They live in a milieu of affluence which few of their parents enjoyed. They luxuriate in freedoms which many of their parents will never enjoy. It is difficult for adults to avoid feeling defensive and annoyed.

To put matters in perspective, the majority of students complete their education without making trouble for the university, or without reaching a state of despair which requires the services of a trained therapist. The student who is both troublesome and troubled, however, seems to be a member of an elite group. This group has an importance beyond its numbers because it has a powerful influence on the entire student body. And its members seem to increase each academic year.

Elite students have been exposed to what we presume is the best of American culture. They are largely from the middle or upper class families. They have been reared in prosperous suburbs or well-to-do city neighborhoods, are given the finest education, and are usually endowed with superior intelligence. Their parents take a high degree of interest in their welfare and support them comfortably, sometimes lavishly. With the exception of elite members who find outlets for activism in the Peace Corps or civil rights work, this group has come to represent the most interesting but at the same time most exasperating element on the campus.

---

[1] Reprinted by permission from THINK Magazine, published by IBM, Copyright 1967, by International Business Machines Corporation. Vol. 33, No. 2, March-April, 1967, pp. 21-24.

Unfortunately, those elite students who are most troubled and whose behavior is most extreme, have become the groups whose values tend to be shared increasingly by all students. The new campus heroes and heroines are no longer football players or spring festival queens. They are the rebels, nonconformists and protestors. The least conforming and most rebellious tend to fall into two groups who, in current slang, call themselves "hippies" or "politicals". These are obviously artificial categories, and their members constitute only a small segment of the student body. They are, however, an important voice on the campus. They are also well represented in any population of student psychiatric patients.

The Hippies

The hippies, for instance, tend to be tolerant and friendly young people whose public flaunting of convention belies a basic passivity. They are also exceptionally open to new ideas. The hippie is deeply concerned with finding his own identity, with becoming a whole person, with communicating, with being terribly honest and real. He often shows talent for the arts.

On the other hand, the hippie is a student who seeks an existence in which he is committed neither to past values nor future causes. With his focus on the present he is determined to experience everything he can: His sex life is often promiscuous; his devotion to marijuana and occasionally to more potent drugs sometimes takes on religious intensity. Despairing of any hope for guidance from the past, pessimistic toward the possibility of altering the world in which he will live, he turns to himself. He eschews political involvement and finds solace in aesthetics.

Hippies are incredibly lonely people who seem almost incapable of forming intimate relations. (Even their sexual contacts are more frenetic than meaningful.) They hold to a stereotyped view of middle class morality which makes them highly sensitive to "phoniness" in their parents but at the same time unusually susceptible to demagogic leaders. The hippie often believes that any unwillingness to conform to the dictates of an organization or establishment is justifiable. Thus he may have no trepidations about stealing, lying or cheating as long as the injured party is not easily identifiable.

The hippie's reluctance to conform to adult standards might be described as a fear. In its most pathological form it engenders an unwillingness to master skills or to subject oneself to any sort of discipline. Since education is a form of discipline, the hippie often finds himself in academic difficulty. He sometimes cannot even bring himself to conform to the discipline demanded by the printed page. His professed love of learning is dissipated in trifling attempts at creativity. As he fails in school he becomes bitter and depressed.

His discomfort is especially poignant when he is aware of his superior intellectual skills and realizes that he has failed to cultivate them. As he turns more and more to the present, his behavior becomes more and more impulsive. He demands instant education, instant comfort, instant solutions. Frustrations of these demands sometimes leads to attempts at self-destruction. The impulsiveness of the hippie is so great that he does not easily accept the restrictions and time-binding qualities required for successful psychotherapy. When the psychiatrist cannot offer immediate solutions the hippie is likely to discontinue treatment.

The Politicals

The "political" category does not, of course, include every student who is politically active. It is primarily made up of elite students whose activism is intermittent and inconsistent, in effect, a group which shares many of the values and behavior characteristics of the hippie. Such students make up a large proportion of the students involved in campus mass movements. Many are leaders.

The political, like the hippie, tends to live in the present but is able to find brief moments of involvement and commitment. He is less likely to experience academic failure than the hippie because his rebellion is direct and does not have more than a temporary effect on his school work. The most encouraging characteristic is the political's participation in movements that do get things done. He is particularly attractive to those who espouse liberal causes and his accomplishments in the civil rights movement have sometimes been marvelous. Many of us feel that he has been a constructive voice of dissent in the area of foreign policy, and at times he has even been useful in forcing university administrators to reexamine time-honored but arbitrary regulations.

Yet, the political seems discouragingly incapable of sustaining commitment. His distrust of adult standards and his impulsive behavior often interferes with his ability to examine any issue or position in depth. In this sense, he bears little resemblance to student political leaders in the recent past. Today's elite students who are politically active seem intent on instant solutions -- activism is worshiped as an end rather than a means. The political is therefore in the paradoxical position of being a student who is anti-intellectual: In honoring action before wisdom he allows himself to be guided by the most passionate rather than the most thoughtful professors, by the most articulate critics rather than the most steady builders.

One can also detect a self-destructive quality in some of the more recent causes which politicals have espoused. At Berkeley, for example, student causes such as obscene speech and free sex seemed designed to provoke retaliation. At Wisconsin, recent efforts to dictate University policy toward the draft, while perhaps morally laudable, were misdirected and in their most severe forms obviously untenable. The political shows a distinct unwillingness to involve himself in small causes or, indeed, in causes that can be won.

The subtle self-destructiveness and impracticality of the political, coupled with his impulsive behavior and his clinging to the present, eventually lead to self-doubt and confusion. His activism gives him some protection from psychological anguish, but this is temporary protection. When the causes vanish, when they are lost, or even when they are occasionally won, he is left alone with his emptiness. At this point, he experiences the same despair which drives the more passive student to the psychiatrist.

The elite group has a casual attitude toward sex. The issue is most likely to produce adult defensiveness in the form of over-identification, indignant condemnation or denial that greater sexual freedom exists. The most feeble defense is denial. No one who has much to do with students doubts that the elite group (in contrast to the student population as a whole) are having intimate relations with a greater variety of partners than ever before. Elite students insist that they do so only if a relationship is meaningful. Sometimes this is true. More often, however, this is pious rationalization. There is a sense of being loyal to one partner at a time, but the behavior of the elite student is most accurately described as promiscuous.

How are we to evaluate this new freedom? Even if we are willing to discount the Judeo-Christian taboos, there is still something disquieting about it.

Rollo May, professor of graduate psychology at New York University, has described the new sexuality as sex without passion. Paradoxically, it is a way of avoiding intimacy rather than finding it. Two students may meet each other, and, after a few experiences, find they do not really know each other and sometimes that they do not even like one another. At the first argument or distraction the relationship ends; new partners are too readily available. There is reason to doubt the capacity of such students to make successful marriages: The student psychiatrist sees more and more recently married couples who find themselves unable to tolerate the possibility of loving one person intimately or remaining faithful to that person.

In spite of the liberal quality of student sexuality, the whole pattern of interaction seems to favor the male and to exploit the female. Many girls report that it is just too much trouble to say no, that if they do they will be ostracized by the elite group. The girl is expected to assume the responsibility of avoiding pregnancy, and if she should become pregnant, she learns not to anticipate an offer of marriage but to assume that she will have to take responsibility for a criminal abortion.

Even more discouraging, the new era of promiscuity seems to have done little to enhance the female student's image of herself as a productive and responsible person. The elite female student shows little inclination to seek a career but seems to be trapped in a new feminine mystique which deprives her of meaningful goals and self-respect. Her status as a whole person is subtly degraded.

The Causes of Despair

If we accept the above observations of student conduct, how are we to understand the processes by which this affluent, carefully trained and almost pampered group has come to find life so distressing and alienated? Certainly among those who reach the psychiatrist's office it is not too difficult to discover deep-seated psychological conflicts which originate in a disturbed family situation. Psychiatric explanations of student despair are partially valid, but they seem to be strangely hollow and stereotyped. The degree of family conflict seen in hippie and political patients is impressive, but not severe enough to explain their degree of misery. More often, one suspects that in another age such students would not have sought the counsel of an older person. Family conflict may be a necessary cause of student despair, but it is not a sufficient explanation. We must also search for the causes in the nature of the student's world, in those sociological, economic and moral factors which lead him to perceive his existence as meaningless.

The most intriguing explanation of current student conduct has been proposed by Kenneth Keniston, assistant professor of psychology at the Yale School of Medicine. In his book, The Uncommitted, Keniston notes that our country reverses progress and change. New technology, population growth and greater geographic mobility have created a society in which change takes place at a faster rate each year and in which the nature of the near future is impossible to predict. According to Keniston, the elite student is among the first to realize that the values of the past may be totally inappropriate for the world in which he will be an adult. The student furthermore despairs of the future since he finds it unpredictable and feels powerless to direct it. Faced with a bewildering rate of social change he learns to be "cool", to avoid commitment, and to live in the present. Keniston's theory clarifies both the pathetic withdrawal of the hippie and the sometimes self-defeating rebellion of the political.

There are at least six other aspects of American culture which help us to understand current student conduct.

Living in the affluent society of middle class America is itself a stress which encourages a concentration on life in the present. Many writers have commented on the absence of opportunity to find meaningful work and the great amount of leisure which confronts our youth. But even as the student attempts to lose himself in a pleasure-dominated life, he finds himself in a trap. His early upbringing was dominated by the values of the Protestant ethic, and he therefore feels guilty when he realizes his affluence is unearned and the mass of men still live in bitter poverty.

As American culture continues to downgrade the influence of the family group, we are all drawn into closer and closer contact with peers. The middle class, middle-aged American lives with other middle class, middle-aged Americans in the suburbs. He sends his aging parents to retirement homes in Florida and Arizona, and his late adolescent children to university dormitories. On almost any campus, students rarely see anyone but fellow students. They crave adult company, but cannot find it. As a result, they turn to themselves and create their own values and morals. An unfortunate by-product of this process is that the peer group often emerges as far more tyrannical than the student's own parents. The student is trapped in a code of conduct which he cannot violate without losing the only source of sustenance he can find -- his peers. And, not surprisingly, the value systems of the student peer culture tend to support rebellion against adults: "Don't trust anyone over 30."

We live in a world which places more and more emphasis on youth. In our adulation of youth we forget that it is mainly their physical qualities that are admirable, not their wisdom. In our guilt over our own inadequacies we turn to our youth and are sometimes willing to let them guide us by their behavior. This makes it possible for some students to arrive at a grandiose assessment of their own ability and power. When they convince themselves that they are capable of "taking over" a university, they can sustain this delusion only because adults allow them to sustain it.

Today's students have grown up in a world which has given them unlimited access to the cynical truths of life. They have been reared on television since birth. By the time they reach 13 there is little they do not know about the sordid aspects of the world. Many students have come to doubt the value of any institution -- the church, the corporation, or even the law -- which represents conformity.

Up to the time of President Kennedy's death, students were more hopeful and idealistic. The suddenness and obscenity of his assassination has, of course, had a profound effect on all of us, but its demoralizing influence on our youth is real and baleful.

The current generation of students received much of their schooling in the post-Sputnik era, a time when education in primary and secondary schools has been revered as a means rather than an end. The student seems able to sustain his enthusiasm through high school, but by the time he reaches college he begins to question whether the rewards are worth the effort. Since the student has not been taught to love learning simply for the sake of learning, he finds little solace in the kinds of mastery, discipline and accomplishment that have gratified older generations.

Ominous Signs

The most salient characteristic of American elite students is their desperate clinging to the present. Living for the moment is not a new philosophy in man's history. Up to now, however, it has been characteristic of people we believe to be antisocial and sick. Psychiatrists have learned that living in the present is an option primarily available to the young. As one matures he must find commitment to other people or to ideals. If he cannot, he spends his adulthood in a state of chronic despair. It would seem that if our society continues its unplanned growth we will see more and more people who lead meaningless lives. The ominous signs of this tragedy are already apparent in the increased suicide rate among gifted students.

Remedial Measures

There are obviously no immediate solutions to the problems of our troubled young people. It is possible, however, to point out some directions for both the universities and society.

If we consider student unrest only in terms of the university campus climate, it is possible to suggest some remedial measures. The most crucial need is for more contact between students and adults, particularly between students and adult teachers. The psychiatrist is a poor substitute for a parent or a teacher, yet on many campuses he is the only adult to whom the student can talk in a leisurely, intimate manner. The need for an educational experience that does not totally isolate students from adult values is enormous, but it is being ignored.

Universities must also redefine their role in American society. The old model of the university as a community of scholars (usually highly selected and independently wealthy) may not be appropriate to today's world. In an era in which the majority of our youth wish to attend college, and in which many plan to remain in school well into their adult years, the university exerts a crucial influence upon the personality development of a highly significant proportion of society. Our universities should not only be planning for physical growth but should also be searching for means for producing more mature and responsible citizens. This might be facilitated if the student role were made a more responsible one, if students were given some realistic prerogatives and serious obligations in decision-making processes by which the university plans for its own growth and develops its relationship to the community at large.

If we consider student unrest as only one manifestation of a kind of uneasiness that pervades our entire society, any remedies must be global and must consider the nature of man and his current world. I have emphasized that the most important factor in creating student despair is the rapid rate of social change within American society.

To any of us who adhere to democratic and Judeo-Christian ethics the solutions to the problems of our youth must be sought by anticipating the psychological consequences of social change, and where such consequences seem undesirable, by working to prevent them. Unfortunately the impact of social change upon personality is one of the least studied fields in human psychology. No one doubts that increased population, increased leisure, new technology and an ever earlier obsolescence of knowledge and skills will have a profound impact upon human character. Yet neither our government, our corporations nor our universities are sufficiently interested in studying the subject. We simply assume tha people will accommodate their personalities to new conditions of life and that all will go well.

But supposing it doesn't go well. What if our troubled students are n simply a by-product of a brief transitional phase but are rather a significant minority who will remain among us indefinitely? If this is true we must then plan for such people, plan means of helping them find new commitments, and help them to search for means of attaining psychological maturity before their lives are dissipated through prolonged alienation. Let us suppose that there are even more depressing possibilities. Suppose our troubled students actually represent a symbol of protest against a future society that cannot meet humanistic needs. Or suppose that their state of despair becomes so common in our world that it characterizes a majority of the population. In either case our only recourse would be to critically examine society's rate of change and make heroic plans to counteract those changes which threaten to have adverse consequences.

Efforts to plan or control social and technological change would not be universally welcomed in a democratic capitalistic society. Perhaps such drastic measures will never be necessary. I am admittedly considering the most pessimistic possibilities. Yet there is reason to ponder whether we are in danger of developing a society of chronically despairing individuals. There is even more reason to begin now to find ways of using all of our science and all of our technology to develop a more humane and compassionate society.

Three Wise Men

There is a story that three wise men living on an island were confronted with the knowledge that their homeland would be inundated by massive tidal waves in exactly three days. The first wise man said that in the face of this imminent destruction he would take his family to the mountains and there, surrounded by his loved ones, would spend his last hours in meditation and prayer. The second wise man said the only sensible recourse was to spend his last days trying to experience the ultimate of physical pleasures. The third wise man simply stated that in his remaining days he would bring together the most intelligent men and try to figure out a way to live underwater.

The third man's solution is clearly the wisest. If we bring the analogy back to the problems of our world, however, it may turn out to be too pessimistic a solution. In our conviction that unplanned change is inevitable we have sought to accommodate ourselves to new aspects of this man-made world as though we had no choice. We call upon our wise men, our psychiatrists and our theologians to tell us how we are to live in such a world, and they never fail to respond. But who wants to live underwater, anyway? Perhaps it is possible for man to plan his own progress and eventually to control the social tides which threaten us?

DRUGS AND PERSONAL VALUES[1]

Richard H. Blum, Ph.D.
Director, Psychopharmacology Project,
Institute for the Study of Human Problems
Stanford University[2]

I am sure that it is out of your own formulations and observations -- and not those of experts -- that each of you will come to a position which will enable you to deal with the student drug use problem on your own campuses. The best the experts can do is to give background information to allow you to make enlightened decisions.

I am to talk about values and drug use. For myself, I cannot divorce the notion of values from the business of motives and of the social and historical context. Let me start by making an observation. It is simply that drug use today is in many ways not different from drug use not only yesterday but two or three thousand years ago. The motives associated with the use of drugs occur again and again. In this regard I suggest that in traditional societies the introduction of drug use has been associated with two radically different kinds of goals, or if you will, values; that is, for religious or medical purposes.

The religious orientation has essentially been an expanding one. That is, it proposes that there is something more in this world than the ordinary self and that the person can have access to that greater power. The person with this orientation uses drugs because he desires to experience that power, to get close to it, to know what it is. This religious drug use is a supplement, if you will, to where man already stands. It may be an ecstatic supplement in the sense that one has experiences ordinarily denied. One has an orgy or a delight or a spasm of joy, whatever you want to call it, or it may be a profound mystical experience or simply a sensitive and beautiful feeling.

The other theme, the medical theme, has been that of healing or pain killing. It does not seek to supplement ordinary life but rather to bring the person back to where he once was or to put him in a position where he can function adequately. Traditionally the use of psychoactive drugs has been for the relief of pain and anxiety. These, the tranquilizers as well as the narcotics, comprise the largest category of drugs used medically.

---

[1] Paper presented at National Association of Student Personnel Administrators Drug Education Conference, Washington, D.C., November 7-8, 1966. The NASPA Drug Education Project is supported by Contract No. FDA 67-3, with the Food and Drug Administration, Dept. of Health, Education and Welfare.

[2] Also, Consultant, President's Commission on Law Enforcement and Administration of Justice.

In traditional societies one finds the simultaneous use of drugs for healing and religious ends. In such societies one also finds, but more rarely, a third orientation associated with the individual use of drugs. Here the drug is associated with a *decrease* in the individual's ability to function and in his capacity for both work and experience, as seen in the disabled drug user. Such inadequacy is sometimes disguised behind a philosophy of drug enjoyment or a commitment to a drug-using group. I do not think we should overlook this function in those who use drugs ostensibly for other purposes. It may well be that people want to withdraw.

Historically one sees that the motives and values associated with drug use cannot be disassociated from the kinds of people using the drug. Nevertheless, in traditional societies drug use tended to be ritualized and institutionalized and to be surrounded with social controls. Behavior under the drugs was dictated by clear expectancies. Drug use was put aside as but a little part of life, a very formal arrangement involving several people in prescribed social roles. Private use was discouraged. Drugs were not a secular commodity.

But today we are a secular society. The world has changed a lot since the Industrial Revolution and the Reformation. We now have secular use of drugs and a great diversity of motives and values associated with their use -- and of course in less homogeneous societies there is a diversity of persons and beliefs as well. In drug-taking, secularization means the accentuation of private motives. It means we no longer have one or another single set of values associated with the use of these substances, and no longer have formal controls built into drug-taking settings.

But in looking at the secular use of drugs, which is what we are concerned with in their nonmedical use on the campus, we must be cautious and not become overly psychological in attributing reasons to drug users. The substances being used are all *social* drugs. They are part of the social scene. They are part of what people do together. Anybody who smokes a cigarette in a conversation or who takes a drink with others knows this. Thus when we talk about newly popular drugs, like LSD or marihuana, we must note that some of the reasons for their adoption have to do, in part, with their function in sociability. The diffusion of drugs must be examined as a social exchange and as a learning phenomenon.

Some aspects of drug diffusion seem fairly consistent from campus to campus and are even consistent over the last few thousand years. For example, young people usually learn to take drugs from the people who are older. Females tend to take them from males. People with higher status give them to people of lower status. Leaders distribute them to followers.

Given such patterns, it is hard to infer a single set of values or of motives in the diffusion of drugs on campuses. Indeed as drug use becomes common among students, one can say that a sophomore is exhibiting normal social behavior in taking marihuana for the first time from a senior. Normal of course by no means implies that it is wise.

Another important feature which we find in the study of committed drug users, as opposed to people who are merely experimenting, is that the reasons for continuing to take the drug are frequently different from the reasons for starting it. For example, one starts to smoke because one's friends and parents smoke, because it is the thing to do, or because one is sociable or curious about smoking. But the cigarette can become very personal. One gets to need the cigarette. Those of you who have become cigarette addicts, and clearly there are several of you in this room, are aware, as you examine yourself, that the present desire to stave off withdrawal symptoms, to stay content, to suppress tension -- or even the desire to have something to do with your hands -- is quite different from the original exploration and sociability that led you to smoke your first cigarette. For the confirmed user the value in smoking may stem from physiological responses to the use of the cigarette.

Here we can remark on a very curious and under-illustrated phenomenon, which is that people develop ideologies to support what they already want to do. We are grateful to Erik Erikson for telling us that ideologies are part of the identification pattern, that they help us find ourselves, that we select from this great cultural bazaar of available belief systems ones that we grow into. As we do so, we can become more complex, interesting and thoughtful. We have all watched ourselves make use of an ideology in this constructive way. Another use is essentially self-fooling or blinding, as in the case where the ideology provides an excuse for why we are behaving the way we are, a convenience which hides our motives and our very personal reasons even from ourselves.

So it is that we must consider the possibility that some of the profound and intrinsically interesting systems of belief which people tell us account for their drug use may, in fact, be elaborations, inventions, mythologies which are necessary but perhaps irrelevant to the reasons for initial use. They may also be irrelevant as reasons for continuing use, except insofar as the ideology binds the drug-using group together. People share it with each other and pat each other on the back and say, "This is what we believe, and we are all very fine fellows." And that, of course, is not just what drug users do but what all of us do.

If we are going to talk about personal values and motives as explanations of behavior, we are automatically in trouble, as well we know. Since why we behave in a particular way is frequently a mystery to ourselves as well as to our neighbors, to impute a value or motive can be just an after-the-fact exercise. In self-analysis, the difficulties are compounded by our tendency to portray ourselves in a favorable light. Consider how rarely you have met anybody who was not, by his own admission, a fine and decent fellow who did what he did for wonderful or at least compelling reasons -- or for fashionably psychological reasons -- but never for bad reasons. This is the basis for our difficulty when we interview people and ask them to account for their abuse of drugs.

The problem also exists for the analyst of another's behavior. I look at a piece of behavior and, if it is complex social behavior in which my own value systems are involved, I may well be making a lot of private judgments first, after which I think of a word -- either good or bad -- to fit the guy I am studying. So it is that we are all familiar with the common psychiatric insult system. We don't say he is a son of a gun or a bastard. We say he is a very obsessive compulsive neurotic who has a sadistic tendency. When we look at disapproved drug use or at drug users, and when as members of a committee group they look at us squares, there is an awful lot of this kind of elaboration upon what is essentially mutual dislike or distrust. Each of us and each of them finds a nice system to account for why the person or group deserves to be disliked.

Given these hazards raised by our own prejudices, perhaps it is safer to begin by examining the functions of drug use. What does it do for the guy? How does he act? What seems to be happening? What does his group do and what impact does it have on the social system of which it is a part? Then at the same time we are free to ask the previous questions: What is it that the drug user says he believes, says is his motivation for use? We can compare his actions with his statements and test them for consistency -- and as part of this analysis watch our own counterreactions to his behavior and statements, since our own reactions may very well be part of the system which underlies that which is happneing among student drug users.

I trust that I have destroyed the basis for everything else that I am going to say, for I have suggested that I am not only wrong but not to be trusted because my own values are going to enter in. Now that you are forewarned, I would like to suggest some reasons why people use drugs and some reasons and values that are associated with drug use. And if you do not challenge me, something is wrong with this group. Let us see what happens. Let us see how much dissent and thought we can provoke. I suggest that one of the fundamental orientations which might be used to discriminate those who continue to use drugs (LSD in particular but marihuana and some of the others too) from those who reject their use is an inside versus outside orientation. Introversion and extraversion are terms for what we are dealing with here. In interviews with and observations of drug-using people, one senses an emphasis on the value of what is going on inside their heads, on looking at it, and on the importance of internal experience. But among non-users, I think there is more interest in external experience, in what is going on between people, with an emphasis on looking for explanations and for directions and solutions on the outside. In our LSD study this seemed very clear and, though I am not at all sure it was correct, this still seems evident as we continue our studies.

As alternate terms for inner-outer or for introversion-extra-version, one can say egocentric versus other-centered, selfish versus sociable, or profound, sensitive and esthetic versus materialistic and shallow. The terms you use depend on what system you buy and how you feel about it. In this initial concentration on the inner orientation, let us assume for a moment that there may be some worth to this category of experience. What are the satisfactions or values associated with an emphasis on internal experience? The kind we had better consider first -- which I think are rather important -- are essentially psychopathological functions.

Some people hurt themselves or others and can be said to be screwed-up characters. If we will accept this for the moment as a definition of "psychopathology", I suggest that some proportion of drug users, students and others, are fouled-up people. The drug serves them not in an unscrewing function but perhaps in a pain-reducing function. When a doctor ponders when to give morphine he weighs the utility of the drug in terms of its capability to reduce pain. In the case of a disturbed student's pondering when to self-medicate with a social drug, he may also weigh its utility for pain-reduction. His value or aim is, "I don't want to hurt." He is not pursuing pleasure; he may merely hurt less than usual when on drugs.

A student I know is a very capable and sweet guy. He is also a rather heavy user. He uses it, he tells me -- and I have also watched him -- whenever he is going to be with a group, because he gets nervous and tense otherwise. A little LSD or marihuana calms him down and allows him to function. Others of us might take scotch or cigarettes but LSD does that for him. Such psychopathology as his is minor, but without much looking we can see serious illness among some drug users. Another important way of using drugs has to do with the *partial resolution of maturational difficulties*, of some of the difficulties of growing up. Many human beings are stuck with psychosexual complexes. A guy or a girl during college years can be exposed to all kinds of relationships and impulses which do not get handled as he would like. By using drugs he can sometimes succeed in reducing not only the anxiety but also the desire. An example, it is a curious thing that there is among the users of the mind-altering substances a lot of talk about "making out", about sex and free love -- but damned little activity. I think that the function of the drug in reducing sexuality cannot be ignored. It is not that sex is no longer important but rather that the student can accept a new value, one which says, "It is all right to be nonsexual and to concentrate on other things." That may or may not be a neurotic solution. I leave the decision to you. Another pathologically relevant use of drugs has to do with the *reduction of intimacy in human relationships*. In this society you cannot get away with that without lying. We are supposed to like each other. The acceptable thing is to go out and mix and be a good guy, get along, be affectionate or at least smooth, to love a lot or a little -- but above all to seek and be with others. The use of drugs may remove people from intimacy and may do it in a way which can be lied about very easily, because they say, "I am becoming more intimate. I am feeling loved. I am a lovely guy. You are a lovely guy. We are lovely together." Saying that they crawl back into their skulls where they do not have to look at one another again. One achieves this "lovingly" and has not hurt anyone and has learned a new value system to justify one's pathology. I watch it often. I believe it to be there. If it is, I will be delighted; if it is not, I will not be surprised. As I say, I am often wrong.

All drug use certainly cannot be conceived in terms of individual pathology, nor can all use be explained simply in terms of private feelings, or neurotic or even psychotic idiosyncrasies. We therefore have to deal with *interpersonal pathology*, the nasty things people do to one another with or without an excuse. Drugs do not produce any special new nastiness in human beings. We are all capable of all kinds of misbehavior without taking any drug. One of the great dangers, one of the great nonsenses in criminology and other fields is to blame bad behavior on drugs. You will hear someone say, "He took heroin and became a bad boy." The fact is that if he is a bad boy and takes heroin, he remains a bad boy and is going to stay a bad boy until something else -- not heroin -- happens. That he treats people badly can be accounted for not in terms of drug use but in terms of how others have treated him. Thus much psychopathology is really an interpersonal phenomenon. Much behavior under drugs is nasty, take the aggressive drunk for example, and we dare not ignore it. But the chances are that it is the person and the situation, not the drug, which are accountable. The drug just changes the emphasis.

If we are bad guys, it will be expressed in everything we do with or without drugs. In the business of drug using one of the ways to be a bad guy is to exploit another person, which is one of the things people do to each other with or without drugs. We all get sick and tired when we listen to the Federal Bureau of Narcotics give us this baloney about moral degeneration, about seductions and heroin crimes and drug exploitation. But we can over-react. We must not be led into the opposite view in which we insist that everybody who uses drugs is beautiful and behaves in a fashion which charms everyone else. It is just not so.

People can use drugs to be nasty to one another; they can use the drug for a nasty purpose; and some very unpleasant things do happen in the course of drug use. One occasionally finds the exploitation of the dependency of another and the control of others. All the young hoods do not grow up in the streets of Brooklyn. Some few young hoods are growing up on our campuses. With twenty thousand or more kids on a single campus one inevitably finds that a few are really quite sour. These may discover drugs as an interpersonal tool or weapon and they use them as such. Such behavior does occur, but fortunately it is rare.

Another thing that happens in drug use -- it is not pathological but human and does not bode well for society -- is the ethnocentrism one sees in the development of drug-using groups. As in any other social group, an emphasis can be placed, call it tribal or fraternal, on valuing the insider and on denigrating or rejecting the outsider. In studying the way-out drug users one just cannot miss this characteristic. It hits you in the face and does not make for good conversation or pleasant relationships. For the ingroup fellows a drug can become a symbol of group-belongingness and worth. That in-group feeling is accentuated simply by the realities of illicit drug use, which require a pseudodelinquent tie and a wariness about the punishment potential existing in the square out-group society. After a group has clustered about a supply source it can develop defensive justifications which say, "Wonderful, a fine bunch of people we are, but those who want to cut off our drug supply or to punish us are very bad fellows indeed."

All of the foregoing are, I would say, adverse effects of drug use. Perhaps that simply means I do not like them. It may not mean anything else, and it does not prove these aspects are even there.

Now let us look at some other aspects of use. We must not ignore the religious and mystical functions which students attribute to drugs and the religious and mystical experiences which they say they have under drugs. Have they indeed had them? Who is to say? Nobody knows really what goes on inside anybody else's head, not even with the aid of an EEG machine. Since all of our subjective experiences are private, it is very difficult to challenge one another about what is really going on inside. When something new happens in our heads, as in a drug reaction, one has to interpret it. That interpretation can be helped by teaching. There is no doubt that drug users tend to teach each other what is going on inside the head. Somebody joins a group of kids and, whether by accident or propensity, he likes them. They say to him, "We use marihuana or LSD and we are having a religious experience." They give him the drug in a setting where his experience is formulated as a religious one and he believes that is what happened. He may be correct, for that matter, as William James argued. On the other hand, when one's brain is turned off by a response to toxic drugs one had to substitute something else, something to lean on and to interpret the world with. At that moment of organic anxiety, it is critically important for somebody to come in with supports, with a belief system to replace that which disappeared when the complicated circuits were shorted out.

So it is that teaching goes on while one is taking drugs. Howard Becker, a sociologist and no square, has written a fine book (The Outsiders)[3] on how one learns to use pot and to accept the group values associated with it. After one has interpreted the drug reaction, the teaching system keeps going. If one is still a member of the group, and they keep saying what happened that day and what is going to happen the next day, lo and behold, a philosophy or religion is created and becomes institutionalized among drug users. The same thing may, of course, happen -- without drugs -- in the development of any belief system.

Time is short. I will run through a list of other things that I think are relevant to the use of drugs by students, and which we can see have belief systems built around them. One aspect is the disillusionment, the unhappy response of disillusionment with a harsh life and an unkind society that comes one day to all young people. Living anywhere is hard work. Living in a competitive society is hard work and often not much fun. It is very nice to find a way out through the back door or any other door we can find. A new system of values which promises a way out will be attractive. Some of the drug culture mechanisms allow one a private way out while maintaining a public facade of accommodation, for it does not go all the way out, just part of the way out. One goes one way and believes another -- or believes he believes. When that happens we have an ideology that seems to be working.

Another function of the drug we see expressed is a creative and "esthetic" one. Drug use is equated with beauty and sensitivity. Some quite competent artists feel a debt to LSD or pot for freeing them or for helping them to be creative. These are the reports of their personal experiences.

---

[3] Becker, H. The Outsiders: Studies in the Sociology of Deviance. New York: Free Press of Glencoe, Illinois, 1963.

When competent artists say that, we must respect their beliefs. I do, even though I suspect that they owe more credit to themselves and less to the drug.

Another aspect of drug use has to do with our much-vaunted rationality. As a society we have spent a lot of time trying to make love with or to the computer. I have a friend who is a good scientist. He spends at least eight hours daily, from five in the afternoon to about one at night, not with his wife but with the computer. That presumably rational machine holds a pre-eminent place in his life but I think some of us -- my friend's wife included -- get tired of the computer and what it represents. I think students are tired of rationality and things associated with it -- foresight, control, discipline, the Protestant ethic bit, grace gained only in later life -- for they are hard to live with. To be irrational, to be allowed to have an ecstatic experience, even a mushy one, that is not so bad if one must live with the rational computer night and day, as these kids are beginning to have to do.

I might add that this is happening to some while they watch their own parents and older friends and associates, their teachers and deans, and they say, "Is that going to be me? Help, I want out!" You may call that irrational until one day you also have had it and when that day comes you also look for the door that leads out.

Another set of notions I suspect may be associated with student drug use are those delightful feelings of invulnerability, the beautiful young belief that "Nothing can hurt me." Some have ways of proving it. "I climb mountains because I will not be killed mountain climbing, or I will drive ninety miles an hour because my car has a special charm." Drug use represents for some what a psychiatrist would call a counter-phobic response. For others, the invulnerable feeling results only because they have had a good life, well protected and pretty sweet, and they just never got the idea that something bad might happen. Sometimes they are struck with how they have to create a crisis to explain or make themselves find a way to move away from their parents or to create an independent self. Some of the kinds of crises and dangers, and independence, which some of the youngsters have to create are, to our way of thinking, very minor indeed. I suspect that this generation has not developed a suitable regard for what a nasty universe it can be, with earthquakes, wars, and what have you, things they have not learned to fear. That includes toxic response to chemicals. A drug used to prove a little independence can become a bigger crisis than they planned.

Another drug-relevant element that I think is part of the "I am a beautiful child" syndrome is the notion that "I am basically a fabulous person, and if I don't feel that way at the moment I can become that way by just seeing further into my real self -- the pure one uncontaminated by the adult cesspool world." That hope of being beautiful or complex is certainly understandable. It is a poetic desire, although others might call it vanity. I will leave it to you to make your choice.

Another drug-relevant element which I think is part of the value-system, although I do not know how many people subscribe to it, is part of a new morality. I think it is called that, whether it is really a new morality or not. What is said is that there are a set of correlated notions some students have tied in with drug use. The new morality prizes private experience, inner sensation. It values freedom, art, nonrestraint, pacificism, protection of life, and nonaggressiveness. (I might add that some sociologists have suggested that heroin reduces violence and saves a lot of people from being hit over the head by those young hoods who have turned to heroin and who are thereby quieter people.) The new morality is associated with anarchistic beliefs, expressed optimism, a feeling of separateness from the adult world, and not too much respect for the sacred cows of middle-aged folk. College administrators are often in the sacred cow class. With the help of drugs, the new morality helps one accept the consequences of being a little flat emotionally, particularly if one wishes to be an aggressive person or if deep down is already a bit depressed or discouraged.

Of course, there can be irony in the new morality, as in the old. It values life and it values others, but an emphasis on inner experience can put the person in the position of not really being able to act in a way that can be of any help to another. The irony can be a feeling of private love unassociated with the capacity to love or to engage in a genuine community life.

Ironically too, one value that is rarely set forth is that of fun. A lot of people take a drug because it is fun, yet it is a curious fact that so few can admit to it. Instead, they may insist that one must take LSD or pot because it is good for you, because it is religious, or because it is psychotherapeutic. You do not do it simply because you enjoy it, and yet you might. So people employ ideologies to excuse their simple pleasures or to justify pain, when that occurs.

In the new morality may also be found the "cool rebellion". To use marihuana or LSD confronts colleges and parents with something that shocks the hell out of them. One cannot ignore the fact that there is shock and rebellion in what is done, but this is a rebellion conducted for the most part behind the privacy of one's own walls. Such a rebellion, an undeclared war, if you will -- and I do not mean to exaggerate its importance since we all go through rebellions -- has the delightful capacity of letting one be a rebel without being identified as such, or letting one's most significant act of antagonism to and rebellion against authority occur in such a way that nobody can clobber the rebel for it. It is sneaky, of course, but fairly safe -- perhaps even discrete.

A final aspect of student drug use is critically important. It can put us in an awkward position, for the university is a place where people are supposed to do new things. The university is an institution for innovation, a place where new ideas are to be explored, a place where the old is supposed to be analyzed and challenged and where, when the old is not any good, one learns to throw it out. The university is a land of hope and promise. It demands experimentation.

There are all kinds of things going on in the university that reflect necessary dissatisfactions. One purpose of the university is to try to control at least one tiny segment of social change by having made a rational enterprise of society. If our students and friends are endeavoring to do what we ask them to do in the university, then they are going to have to explore a lot of things we did not expect them to and which may trouble us.

We say, "I don't mind if you look at nature critically and you can tear hell out of Shakespeare, Lysenko, Ronald Reagon or LBJ. You're a free critic, an explorer in ideas and in life." But then we say, "Still I don't really believe in drug use and I would just as soon that you didn't challenge that one, certainly not publicly, and I don't believe in beards; indeed, it offends me personally that you wear those outlandish clothes." How awkward for us indeed!

These kids accept challenges. All of us make experiments in life. So does a good scientist, many of whose experiments fail; they have to or a good science is not happening. So it is that a university is a place to do experiments which fail and experiments that succeed. That value is one which the kids have learned and I think we are all glad they have. We cannot forget that out of ten experiments which they conduct -- intellectually, socially, or personally -- we are very lucky if they win on one, because in winning on one presumably all of us have gained a bit and benefited. Nevertheless, they are going to be losers on the other nine.

I am only guessing on what the loss/win ratio is on collegiate experimentation. If we are at all lucky they will not lose too badly, and they will not lose in such a way that they are disabled forever.

We try to give them enough information from our own experience to help them. We tell them it is not safe to drink a pint of whisky at one time, that it is not always safe to have intercourse with a prostitute, or that it is rarely safe to drive at ninety miles an hour. We hope they listen.

We hope to let them continue their experimentation and to be able to tell us to go to hell. At the same time we must try to warn them from what we know, if we know it, when a particular experiment might go sour in such a way that they are no longer able to conduct any further social or personal experiments. Let us guide our drug programs by these lights.

DRUG USE AND STUDENT VALUES[1]

Kenneth Keniston, Ph.D.
Associate Professor of Psychiatry
School of Medicine, Yale University
New Haven, Connecticut

Student drug users are generally treated by the mass media as an alien wart upon the student body of America. The use of drugs to alter psychic states, associated in the public mind with the abuse of narcotics, conjures up images of moral lepers and Mafia members. These images, in turn, help prevent any real understanding of the actual meanings and functions of drug use among a small minority of today's students.

In the comments to follow, I will argue that student drug use is closely related to the dominant pressures on American students, and is but a variant of values that are shared by many and perhaps most American undergraduates today. To be sure, only a small minority turn towards drugs; but the members of this minority group are but first-cousins to the more "normal" college student. In particular, the student drug-user shares with his non-drug-using classmates an active search for meaning through intense personal experience.

In order to understand the values shared by many American college students, we must begin by considering some of the pressures that affect today's students. With regard to drug use, two pressures are particularly important: the pressure toward cognitive professionalism, and the pressure toward psychological numbing.

Cognitive Professionalism

The past two decades have seen a revolution in our expectations about college students. Rising standards of academic performance in primary and secondary schools, the "baby boom" of the war, the slowness with which major American universities have expanded their size, -- all have resulted in increasing selectivity by the admissions offices of the most prestigious American colleges and universities. Furthermore, once a student is admitted to college, higher admission standards have meant that more could be demanded of him; students who a generation ago would have done "A" work now find themselves doing only "C" work with the same

---

1. Paper presented at National Association of Student Personnel Administrators Drug Education Conference, Washington, D.C., November 7-8, 1966. The NASPA Drug Education Project is supported by Contract No. FDA 67-3, with the Food and Drug Administration, Dept. of Health, Education and Welfare.

effort. The sheer volume of required reading and writing has increased enormously; in addition, the quality of work expected has grown by leaps and bounds. Finally, for a growing number of young Americans, college is but a stepping stone to professional and graduate school after college; and as a result, consistent academic performance in college increasingly becomes a prerequisite for admission to a desirable business school, medical school, law school or graduate school.

Not only have academic pressures mounted in the past generation, but these pressures have become more and more cognitive. What matters, increasingly, to admissions committees and college graders is the kind of highly intellectual, abstracting, reasoning ability that enables a student to do well on college boards, graduate records and other admissions tests, and -- once he is in college or graduate school -- to turn out consistently high grades that will enable him to overcome the next academic hurdle. And while such intellectual and cognitive talents are highly rewarded, colleges increasingly frown upon emotional, affective, non-intellectual and passionate forms of expression. What is rewarded is the ability to delay, postpone and defer gratification in the interests of higher education tomorrow.

In contrast to these cognitive demands, there are extremely few countervailing pressures to become more feeling, morally responsible, courageous, artistically perceptive, emotionally balanced, or interpersonally subtle human beings. On the contrary, the most visible pressures on today's students are, in many ways, anti-emotional, impersonal, quantitative and numerical. The tangible rewards of our college world -- scholarships, admission to graduate school, fellowships and acclaim -- go for that rather narrow kind of cognitive functioning involved in writing good final examinations, being good at multiple choice tests, and getting good grades. Furthermore, the tangible rewards of the post-collegiate professional world also demand a similar kind of cognitive functioning, at least in the early years. Thus, it is the outstanding college and graduate student who goes on to coveted appointments in desirable hospitals, law firms, businesses, faculties and scientific laboratories.

This pressure for cognitive professionalism is closely related to the increasing "seriousness" of American college students. Many observers have commented on the gradual decline of student enthusiasm for such traditional American student pastimes as fraternities, football games, popularity contests and panty raids. At least at the more selective colleges, the reason for this decline is obvious: the pre-professional student has neither time nor motivation for the traditional pranks of his parents' generation To survive and prosper in today's technological world, he must work with unremitting diligence to "be really good in his field."

Increasingly, then, one of the major pressures on American students is a pressure to perform well academically, to postpone and delay emotional satisfactions until they are older, to refine and sharpen continually their cognitive abilities. As a result, students today probably work harder than students in any other previous generation; a bad course or a bad year means to many of them that they will not get into graduate school. Taking a year off increasingly means running the danger of getting drafted and being sent to Vietnam.

In describing these pressures, I have used the word "performance" advisedly. A "performance" suggests an activity that is alien, that is done on a stage in order to impress others, that is a role played for an audience's applause. And to many students, of course, this quality of mild "alienness" pervades much of their intellectual and academic activities.

Thus, while the systematic quest for cognitive competence occupies much of the time and effort of the pre-professional student at today's selective colleges, this pursuit does little to inform the student about life's wider purposes. One of the peculiar characteristics of professional competence is that even when competence is attained, all of the other really important questions remain unanswered: what life is all about, what really matters, what to stand for, how much to stand for, what is meaningful, relevant and important, what is meaningless, valueless and false. Thus, for many students, the pursuit of professional competence must be supplemented by another, more private and less academic quest for the meaning of life. Academic efforts seem, to a large number of students, divorced from the really important "existential" and "ultimate" questions. In this way, the student's private search for meaning, significance and relevance are experienced as unconnected with or opposed to his public exertions for grades, academic success and professional competence. How students search for significance and relevance of course varies enormously from individual to individual; but as I will later suggest, drug use seems -- to a small group of students -- a pathway to the pursuit of meaning.

Stimulus Flooding and Psychological Numbing

Every society contains pressures and demands which its members simply take for granted. Thus, the pressure for extremely high levels of cognitive efficiency seems to most of us a necessary and an even desirable aspect of modern society. Our response to the second social pressure I want to discuss is even more unreflective and automatic. This second pressure has to do with the sheer quantity, variety and intensity of external stimulation, imagery and excitation to which most Americans are subjected. For lack of a better label, I will term our condition one of increasing "stimulus flooding".

Most individuals in most societies have at some point in their lives had the experience of being so overcome by external stimulation and internal feelings that they gradually find themselves growing numb and unfeeling. Medical students, for example, commonly report that after their first and often intense reactions to the cadaver in the dissecting room, they simply "stop feeling anything" with regard to the object of their dissection. Or we have all had the experience of listening to so much good music, seeing so many fine paintings, being so overwhelmed by excellent cooking that we find ourselves simply unable to respond further to new stimuli. Similarly, at moments of extreme psychic pain and anguish, most individuals "go numb", no longer perceiving the full implications of a catastrophic situation or no longer experiencing the full range of their own feelings. This lowered responsiveness, which I will call "psychological numbing", seems causally related to the variety, persistence and intensity of psychological flooding. In a calm and tranquil field of vision, we notice the slightest motion. In a moving field, only the grossest of movements are apparent to us.

One of the conditions of life in any modern technological society is continual sensory, intellectual, and emotional stimulation which produces or requires a high tendency towards psychological numbing. Some of you, I am sure, have had the experience of returning to urban American life from a calm and tranquil pastoral setting. Initially, we respond by being virtually overwhelmed with the clamor of people, sights, sounds, images and colors that demand our attention and our response. The beauty and the ugliness of the landscape continually strikes us; each of the millions of faces in our great cities has written on it the tragi-comic record of a unique life history; each sound evokes a resonant chord within us. Such periods, however, tend to be transient and fleeting; often they give way to a sense of numbness, of non-responsiveness, and of profound inattention to the very stimuli which earlier evoked so much in us. We settle in; we do not notice any more.

This psychological numbing operates, I submit, at a great variety of levels for modern man. Our experience from childhood onward with the constantly flickering images and sounds of television, films, radio, newspapers, paperbacks, neon signs, advertisements and sound trucks, numbs us to many of the sights and sounds of our civilization. The exposure of the most intelligent men to a vast variety of ideologies, and faiths numbs us, I think, to the unique claims to validity and the special spiritual and intellectual values of each one: we move among values and ideologies as in a two-dimensional landscape. Similarly, the availability to us in novels, films, television, theatre and opera of moments of high passion, tragedy, joy, exhaltation and sadness often ends by numbing us to our own feelings and the feelings of others.

In all these respects, modern men confront the difficult problem of keeping "stimulation" from without to a manageable level, while at the same time protecting themselves against being overwhelmed by their own inner responses to the stimuli from the outer world. Defenses or barriers against both internal and external stimulation are, of course, essential in order for us to preserve our intactness and integrity as personalities. From earliest childhood, children develop thresholds of responsiveness and barriers against stimulation in order to protect themselves against being overwhelmed by inner or outer excitement. Similarly, in adulthood, comparable barriers, thresholds and defenses are necessary, especially when we find ourselves in situations of intense stimulation.

I do not mean to suggest that the quantity of stimulation in modern society is alone responsible for psychological numbing. Certainly the quality, kind and variety of stimuli determine how we respond to them; in addition, our own excitability, responsitivity, sensitivity and openness are crucial factors in determining what defenses we need against stimulus flooding. But I am arguing that the quantity, intensity and variety of inputs to which the average American is subjected in an average day probably has no precedent in any other historical society: everywhere we turn we are surrounded by signs, sounds and people actively clamoring for our response. Thus, to survive with calm and intactness in the modern world, we all require an armor, a protective shell, a screen, a capacity to "close off", ignore, or deny our attention to the many stimuli of our physical and social world. Such numbing is necessary however, because the shells we erect to protect ourselves from the clamors of the inner and outer world often prove harder and less permeable than we had originally wanted.

Thus, in at least a minority of Americans, the normal capacity to defend oneself against undue stimulation and inner excitation is exaggerated and automatized, so that it not only protects but walls off the individual from inner and outer experience. In such individuals, there develops an acute sense of being trapped in their own shells, unable to break through their defenses to make "contact" with experience or with other people, a sense of being excessively armored, separated from their own activities as by an invisible screen, estranged from their own feelings and from potentially emotion-arousing experiences in the world. Presumably most of us have had some inkling of this feeling of inner deadness and outer flatness, especially in times of great fatigue, letdown, or depression. The world seems cold and two-dimensional; food and life have lost their savor; our activities are merely "going through the motions", our experiences lack vividness, three-dimensionality, and intensity. Above all, we feel trapped or shut in our own subjectivity.

Such feelings are, I believe, relatively common among college students, and particularly so at moments of intense stress, loss, depression, discouragement and gloom. It is at such times that the gap between the public pursuit of professional competence and the private search for meaning seems widest; it is also at these times that the chasm between individual and his own experience seems most unbridgable.

Each of the two pressures I have discussed -- cognitive professionalism and stimulus flooding -- evoke characteristic responses among today's American college students. The pressure for cognitive professional competence leads to a search for meaning in other areas of life; the feeling and fear of psychological numbing leads to a pursuit, even a cult, of experiences for its own sake. And the use and abuse of psychoactive drugs by students is closely related to these two themes in student values.

The Search for Meaning

Among today's self-conscious college students, the statement, "I'm having an identity crisis" has become a kind of verbal badge of honor, a notch in the gun, a scalp at the belt. But although the term "identity crisis" can be easily parodied and misused, it points to fundamental issues of adolescence in all societies that are particularly heightened in our own society. Since academic pursuits, on the whole, tell the student so little about life's ultimate purposes, students are turned back upon their own resources to answer questions like, "What does life mean? What kind of a person am I? Where am I going? Where do I come from? What really matters?"

Obviously, our society does not attempt to provide young Americans ready-made and neatly packaged answers to these questions. Rather, we expect that students will, in general, arrive at individual solutions to the riddles of life, and indeed, we sometimes deliberately design our educational systems so as to provoke and challenge students to profound replies. Yet at the same time, we insist that students occupy themselves with getting good grades and getting ahead in the academic world, pursuits that often seem to have relatively little to do with "ultimate" questions. Thus, students often feel obligated to turn away from their academic pursuits toward a private quest for identity or search for meaning.

To understand this search for meaning, we must recall that many of the traditional avenues to meaning and significance have dried up. Traditional religious faith is not, for most sophisticated undergraduates, a means of ascertaining the meaning of life: traditional religions often seem to students to be worn out, insincere, or superficial. Similarly, the great classic political ideologies, whether they be political liberalism, conservatism, marxism, or fascism, arouse relatively little interest among most undergraduates. Nor does the "American Way of Life", as epitomized by 100% Americanism and free enterprise, stir most students to enthusiasm, much less provide them with answers about life's ultimate purposes.

At the same time, many traditional campus activities have lost their centrality as guidelines for or rehearsal of life's ultimate purposes. There was a day, when the quest for popularity seemed to a great many undergraduates, a reflection of a broader philosophy on life in which the most important goal was to make friends, to be popular and to influence people. Today, the pursuit of popularity and social success is declining in importance, and even those who pursue friendship and social skills most avidly are likely to recognize their limitations as ultimate values. Upward mobility, another ancient American goal, has also lost much of its savor. More and more students arrive in college already "ahead in the world", from well-situated middle class families, and not particularly worried about status and upward mobility. Nor does the old American dream of giving one's children "a better chance" make great sense of life to a generation that has been born and bred amid affluence, and that rarely imagines a society in which starvation, unemployment, or depression will be major possibilities.

One by one, then, many of the traditional sources of meaning have disappeared, at the very same time that academic life itself, because of its intense pressure and professional specialization, seems to many students increasingly irrelevant to their major existential concerns. Where, then, do students turn?

The Cult of Experience

The cult of experience has often been discussed as a defining characteristic of American youth cultures. Central to this cult is a focus on the present -- on today, on the here-and-now. Thus, rather than to defer gratification and enjoyment for a distant future, immediate pleasure and satisfaction are emphasized. Rather than reverence for the traditions of the past, experience in the present is stressed. Psychologically, then, such human qualities as control, planning, waiting, saving, and postponing on the one hand, and revering, recalling, remembering and respecting on the other, are equally deemphasized. In contrast, activity, adventure, responsiveness, genuineness, spontaneity and sentience are the new experiential values. Since neither the future nor the past can be assumed to hold life's meaning, the meaning of life must be sought within present experience, within the self, within its activity and responsiveness in the here-and-now.

The cult of experience has many variants and forms, most of them visible in one aspect or another on most American campuses. One such variant is what is often termed "student existentialism". At the more intellectually sophisticated campuses, this outlook manifests itself in an intense interest in existential writers like Sartre and Camus. But at a variety of other colleges, it is evident by student discussions of the importance of simple human commitments as contrasted with absolute values, and by a pervasively high estimation of such human qualities as authenticity, genuineness, sincerity and directness, which are contrasted with phoniness, inauthenticity, artificiality and hypocrisy. This student existentialism is humanistic rather than religious, and its most immediate goals are love, intimacy, directness, immediacy, empathy and sympathy for one's fellow man. Thus, what matters is interpersonal honesty, "really being yourself", and genuineness, and what is most unacceptable is fraudulence, "role playing", "playing games".

The same focus on simple human experiences in the present is seen in a variety of other student values. Consider, for example, the great growth in interest in the arts -- music, poetry, sculpture, drama, the film as art. Or recall the importance to many students of nature -- that is, of wilderness, of the rapidly disappearing natural beauty of this country. Sex, too, is related to the same theme; for sex is above all that human experience that seems to require directness and immediacy, and that cannot be forced. Similarly, the focus by many students on family life -- their willingness to sacrifice other goals for the creation and maintenance of a good family and a "productive" relationship with their future wives -- these too are variations on the same experiential theme.

Disaffiliation and Drugs

The two student values I have discussed -- the search for meaning and the cult of experience -- are intimately related to the pressures I have outlined earlier. The search for meaning is made more urgent by the amount of time and energy the average student must spend in pre-professional academic pursuits that often appear to him irrelevant to his basic concerns. And the cult of experience is intensified by the fear or feeling in many undergraduates that, instead of becoming more open to themselves and to experience, they are becoming increasingly numbed and closed off from all that is exciting and beautiful. Both of these values are, as well, related to the use and abuse of drugs by students. For such is the cultism and propaganda that surrounds drugs, especially the hallucinogens, that many students have come to feel the states induced by these drugs will automatically produce a revelation of life's meaning, or at least an experience which itself will be highly significant and illuminating. Similarly, to the undergraduate who feels himself unduly walled-off from experience, drugs like the hallucinogens and the amphetamines (which intensify and alter ordinary states of consciousness) may seem a chemical sledge hammer for breaking out of his shell.

Obviously, despite the congruence of drug use with important student values in American colleges, the vast majority of American students do not seek meaning and experience primarily via psychoactive compounds. There are other values in most students that conflict sharply with drug use -- for example, a kind of "do-it-yourselfism" that strongly rejects "artificial" and "chemical" means of altering psychic states; a sense of social responsibility that enjoins the student against doing socially disapproved things like abusing drugs; and -- perhaps most important -- a legitimate fear of the possible bad effects of drug use. Social and geographic factors also contribute to the low incidence of drug use. On many campuses, drugs are simply not available; on other campuses, the prevalent value system (e.g., religious fundamentalism) is completely at odds with the use of psychoactive compounds. Thus, despite the presence of some values which are consistent with drug use, most students have other values that argue against drug use. It is only a minority who are persuaded to choose drugs as a primary means of searching for meaning.

I doubt that it is possible to present an exact portrait of the type of student who is likely to use and abuse drugs. My own experience with student drug-users convinces me that there are many different motives for drug use and abuse, and there are many different factors -- psychological, sociological, cultural and situational -- that determine whether one student will use drugs while another will not. But despite the diversity of student types who may become involved in drug use, there is, I believe, one type that is particularly prone to drug abuse. Students of this type have, I think, particularly few values that militate against drug use and particularly strong motivations that incline them toward drugs, especially the hallucinogens. I will call such students "disaffiliates".

Elsewhere I have attempted a more comprehensive description of disaffiliates or "alienated" students. Here I will merely summarize some of the factors that predispose these students toward drug abuse. The defining characteristic of the disaffiliate is his generalized rejection of prevalent American values, which he rejects largely on esthetic, cultural and "humanistic" grounds. Such students are rarely political activists, and they are rarely concerned with the issues of economic, social and political justice that agitate many of their classmates. For these students, the problem is not political or social, but esthetic: American society is ugly, trashy, cheap and commercial; it is dehumanizing; its middle-class values are seen as arbitrary, materialistic, narrow and hypocritical. Thus, those conventional values which deem experimentation with drugs -- or experimentation of all kinds -- illicit are strongly rejected by disaffiliates; for them, what matters is somehow to seek a way out of the "air conditioned nightmare" of American society.

A second characteristic of disaffiliates is a more or less intense feeling of estrangement from their own experience. Such students are highly aware of the masks, facades and defenses people erect to protect themselves; and not only do they criticize these "defenses" in others, but even more strongly in themselves. Any "defense" that might prevent awareness of inner life must be rooted out and destroyed: self-deception, lack of self-awareness and any "phoniness" with regard to oneself are cardinal sins. But despite their efforts to make contact with their "real" selves and to have "genuine" experiences, disaffiliates often feel separated from both self and others. They experience themselves as separated from others by a grey opaque filter, by invisible screens and curtains, by protective shells and crusts that prevent them from the fullness of experience. They recriminate themselves for their lack of feeling expressiveness, spontaneity and genuineness. One such student described human relations as being like people trying to contact and touch each other through airtight space suits; another talked of a wax that was poured over all of his experience preventing him from genuine contact with it. These feelings of estrangement are often accompanied by considerable depression and a strong sense of personal isolation. Indeed, depression, following the loss of an important relationship, is commonly found in the immediate background of the student who begins to abuse drugs. For the student with intensified feelings of estrangement from himself and others, drugs that promise to heighten experience seem a tempting way out of his shell.

A third relevant characteristic of disaffiliates is a fantasy of fusion and merger, which contrasts sharply with their current feelings of estrangement. In the background, many of these students have a concept of an almost mystical fusion with nature, with their own inner lives, or above all with other people -- a kind of communication that requires no words, a kind of oneness with nature or the world that has characterized intense religious experience for centuries, a special kind of automatic oneness with another. For an undergraduate with an especial longing for oneness with others, the hallucinogens are especially tempting. For one characteristic of the drug experience is a weakening or breaking down of the boundaries of the self such that many individuals in fact report feelings of oneness, merger and fusion with others.

On several grounds, then, the disaffiliate is strongly attracted by drugs. Arguments based on traditional American values against drug use carry little weight for him; on the contrary, he values most in himself his own rebellion against such "middle class" standards. His frequent feelings of estrangement from experience lead him to seek means of breaking through the walls, shells, filters and barriers that separate him from the world. And his fantasy of fusion disposes him to seek out chemical instruments that will increase his "oneness" with others. For such students, who are young, searching, uncommitted and anti-conventional, drug use is primarily a way of searching for meaning via the chemical intensification of personal experience.

Drug Use and Student Values

In portraying one type of student who is predisposed toward the abuse of psychoactive compounds, and in relating drug use to more general student values, I do not mean to portray all American students as potential drug users, nor to decry the student values which may be interpreted to support drug use. On the contrary, I am convinced that the search for meaning through experience is an important and valid search, although I personally doubt that present experience is itself enough to provide "the meaning of life". Similarly, even those students who actively abuse drugs are seeking, I think, legitimate ends through unwise means. It will not do, therefore, to repudiate students who misuse drugs as moral lepers and "addicts" without trying to understand their motives for drug use, and the values and goals they pursue. These motives are rarely simply anti-social or "thrill-seeking". On the contrary, they almost always involve a legitimate (if misguided) search for ultimate meaning and contact with the world. In dealing with individual drug users, then, we must attempt to provide the student with alternate routes to attain his valid goals. And since drug use is notoriously hazardous and uncertain, it should not prove impossible to suggest better avenues toward meaning and experience than drugs. Even Dick Alpert commented, in an earlier talk, that he considers the use of LSD a "crutch"; we must help our students to understand that this is so.

In addition, we need to appreciate that students who use and abuse drugs are reacting not only to the individual circumstances of their past and present lives, but to dilemmas that confront their entire generation. It would of course be wrong to identify drug use solely with cultural and historical pressures. But it would be equally wrong to emphasize the individual psychodynamics of student drug users in such a way as to avoid confronting the possibility that the rising rate of student drug use is a commentary upon our educational system and upon our entire society. Although student drug users are a small minority, they point to the inability of our colleges and our society to enlist the commitments of a talented minority. If we could understand why, it might point not only to how we could "cure" drug users, but, even more important, how we might "cure" colleges and society.

As for counseling student drug users -- potential and actual -- I think it important to acknowledge that the question of drug use is, in the last analysis, not a medical issue, but an existential, philosophical and ethical issue. Student drug users are, as a group, extremely knowledgeable about the possible bad effects of drug use; they can usually teach their counselors, deans and advisors a great deal about the potential bad side effects of drugs. They will argue -- with considerable validity -- that society does not prohibit the use of other psychoactive compounds (e.g., alcohol, tobacco) which in some ways are far more dangerous than many of the hallucinogens or amphetamines. In the last analysis, then, whether one chooses or not to use drugs, in full consciousness of their possible bad effects and the legal implications of drug use, becomes an existential rather than a medical decision. It is a matter of how one chooses to live one's life, how one hopes to seek experience, where and how one searches for meaning. To be sure, I doubt that we can hope to persuade students that drugs are ethically, humanly or existentially undesirable if they are not already persuaded. But I think we can at least help the student to confront the fact that in using drugs he is making a statement about how he wants to live his life. And we can, perhaps, in our own lives and by our own examples, suggest that moral courage, a critical awareness of the defects of our society, a capacity for intense experience and the ability to relate genuinely to other people are not the exclusive possessions of drug-users.

In the long run, then, those of us who are critical of student drug abuse must demonstrate to our students that there are better and more lasting ways to experience the fullness, the depth, the variety and the richness of life than that of ingesting psychoactive chemicals. It would be a pity, for example, to allow the advocates of LSD to take exclusive possession of the term "consciousness-expansion". Consciousness-expansion seems to me not the sole prerogative of psychoactive compounds, but of education in its fullest sense. The giants of our intellectual tradition were men who combined critical consciousness of their own societies with a capacity for experience and relatedness. And they were consciousness-expanders par excellence in their attempts to lead their fellows out of ignorance to a clearer perception of truth, beauty, and reality.

Thus, insofar as we can truly and honestly help our students to become educated in the fullest sense, we will be able to provide alternative routes to the pursuit of meaning, the quest for experience, and the expansion of consciousness. Obviously, much of what passes for higher education in America fails to accomplish any of these high objectives. As long as it continues to fail, I suspect that drugs will continue to be a problem on our campuses and in our society.

MORNING GLORY SEED REACTION[1]

Albert L. Ingram, Jr., M.D.
Ritenour Health Center,
Pennsylvania State University,
University Park, Pennsylvania

During the past 18 months, there have been sporadic references in the literature and in the popular press to the ingestion of the lowly morning glory (Ipomoea) seed. This phenomenon is apparently one more evidence of man's search for substances that will profoundly affect his thinking and his feeling.

For centuries mankind has sought new experiences by deliberate ingestion of substances having mind-altering properties. The early discovery of herbs or plants with the ability to alter perceptions or states of consciousness was entirely accidental and the search for such substances purely on a trial and error basis. It was soon learned that vegetable alkaloids contained in plants having such properties were responsible for the production of psychic phenomena. An impressive list of such plants, including cahobe, betel nut, muscari, soma, peyote, and the seed of the morning glory is now available as a result of scientific investigation. One of the earliest results accruing from the use of scientific methodology was the observance in Mexico by Louis Lewin of the effects of ingestion of the peyote plant. The active alkaloid, mescaline, was soon isolated from peyote.

Nearly 50 years after the isolation of mescaline, d-lysergic acid diethylamide (LSD) was discovered. This much more powerful psychotogen is found in ergot and various ergot derivatives. Recently, the ololiuqui seed from Central America and Mexico has received considerable attention although it had been recognized as hallucinogenic by the Indians for centuries. In their culture the seed was utilized in religious ecstasies, as a healing agent, and for initiating temporary psychotic states as we now know them. According to Osmond, Schultes identified ololiuqui as Rivea corymbosa in 1941. Today several species of morning glory readily grow in the U.S., including Ipomoea tricolor. A. Hoffmann, in 1960, was able to isolate, among other compounds, d-lysergic acid amide and d-isolysergic acid amide from ololiuqui seeds. According to Cohen and Ditman, this was the first isolation of psychotogenic or psychotogenic-like substances from the seed of tropical morning glory.

Psychotomimetics are indoles for the most part, whether occurring in plants or animals or as a result of synthesis. These include LSD, adrenochrome, adrenolutin, harmine, bufotenin, and psilocybin, among others.

---

1. Journal of the American Medical Association, Vol. 190, No. 13, December 28, 1964, pp. 107-108.

Those not derived from the indole grouping are mescaline and other substances with structures similar to epinephrine and certain parasympathomimetics of more recent vintage. The most active of the ergot psychotomimetics is LSD with other related compounds, such as lysergic acid monoethylamide and methyl d-lysergic acid diethylamide being much less potent. It may well be that the hallucinogenic action of the morning glory seed originates in LSD-related compounds but to what extent they are psychotogens remains to be substantiated.

Report of a Case

A 20-year-old white female university student presented at the dispensary at 2:30 PM having ingested five packets (250 seeds) of morning glory seeds (Ipomoea tricolor) at 11:45 AM. On examination, she was conscious although moderately dissociated. She was alternately weeping and silly in her response to questioning. Neurological examination revealed flushed facies, dilated fixed pupils equal in size and moderately hyperactive (3+) deep tendon reflexes throughout. Her blood pressure reading was 116/60 mm Hg; pulse rate was 76 beats per minute. Within two hours she complained of feelings of tension and anxiety. She repeatedly expressed a fear of losing her mind. By six hours postingestion, the tension had subsided and both the dissociative state and weeping had disappeared. From this point on, she was able to communicate in a normal fashion. She revealed no frank hallucinatory phenomena but reported increased awareness of colors and some memory defect, although the latter was more apparent than real.

From the physical standpoint, there was little of great significance. Her temperature was below normal except for two readings during her four-day hospital stay. Her pulse rate varied from 76 to 40 beats per minute, averaging 55. The blood pressure ranged from 132/60 to 92/32 mm Hg, the diastolic readings fluctuating more than the systolic. There was no nausea or vomiting but she had three explosive diarrheic bowel movements nine hours after ingestion of the seeds. This afforded evident relief of generalized abdominal discomfort. There was frequency of urination during the first 12 hours only. Successive urinalyses in 12 and 24 hours were completely within normal limits as was a complete blood count.

Treatment consisted of bed rest, fluids, and no medication. Tranquilizing agents were considered but during the acute phase we had conflicting reports as to the actual substance ingested and calmative drugs were unnecessary once the acute phase had subsided. Fluids were forced following the acute phase. A repeat neurological examination in 24 hours revealed less active (2+) deep tendon reflexes although the pupils continued to be dilated for 48 hours. The patient was discharged on the fourth day when pulse and blood pressure readings had stabilized at or near her norm as recorded in her health record.

Two follow-up outpatient sessions revealed no neurological abnormalities.

Dynamically, a hysteroid personality was revealed with deep, unsatisfied dependent needs. Although insisting she took the morning glory seeds out of sheer boredom, it is notable that this episode rallied divorced parents to her support.

Comment

In view of the fact that lysergic acids have been found in the ololiuqui seed, the LSD reaction is used as a frame of reference in considering the morning glory seed reaction. A search of the literature extent concerning LSD reveals literally hundreds of references to the psychic phenomena associated with the use of this drug. This is recorded as a result of controlled experimental research, in therapeutic experiences, and from unstructured and uncontrolled experimentation by the reckless and immature using a contraband product. However, the physical effects are far less well recorded for both LSD and the mescaline response. There are conflicting references to blood pressure, pulse, and respiratory rates, the presence or absence of nausea and vomiting and abdominal pain. Both polyuria and diarrhea have been reported as well as oliguria with normal bowel function. Although neurological responses are more uniform, there is some contradiction here. A. Cerletti considers the LSD reaction a dualistic one with concomitant, central sympathetic stimulation and lesser central and peripheral depression. Thus, both increased and decreased blood pressure response have been noted experimentally.

The inconsistencies of response following ingestion of the morning glory seed were noted by S. Cohen. This was confirmed by the case presented here. It should be noted that the lowered blood pressure was maintained fairly consistently throughout hospitalization. The pulse rate also remained well below the patient's norm on discharge. This is in marked contrast to the findings in an LSD study by DiMascio, Greenblatt, and Hyde who reported a consistent peak increase in pulse rate of 18% four and one-half hours following LSD administration, a 12% maximum increase in the systolic blood pressure, and a 10% increase in diastolic pressure.

It has been suggested that the insecticide coating on the morning glory seed might be promoting adverse side effects that have been noted. The majority of commercial seeds are treated with N-tri-chlorete which is a fungicide and seed protectant having a tolerance of 100 parts per million. Thus, this is quite an inocuous product from the toxicologic point of view and would require ingestion of quantities beyond the capacity of the stomach to absorb, in amounts found as a seed coater, to be considered lethal. Symptoms involving the nervous system would be lacking if we were dealing only with the effects of this fungicide. Formerly, compounds containing mercury were used extensively as fungicides and there is the possibility that some seeds so treated might pose a toxicologic danger if ingested. This is considered unlikely as the newer seed protectants have been in use for a considerably longer period than the current morning glory fad.

It would seem, then, that both the psychological and physiological effects observed in the ingestion of the seed of the morning glory reside in the alkaloids of the seed and not the seed protectant. The LSD-like reaction is most likely due to the LSD-like alkaloids for no pure LSD has as yet been isolated from the seed. As all compounds occurring in the morning glory seed have not been studied intensively enough to inspire confidence in their respective roles, they cannot yet be considered for scientific experimental use much less be used irresponsibly in excitement-seeking self-experimentation. The increased use of the seeds has perhaps been more notable on the college and university campus where a greater degree of self-experimentation is usually found in the adolescent and young adult. This poses a potential danger of some magnitude. At least one suicide has been reported following the use of this seed internally, and adverse reactions resembling those occurring following administration of LSD have been encountered. As with LSD, latent psychoses can be activated and the neurotic can become physically addicted. The plea is made that controls be contrived that would prohibit or limit the sale of the morning glory seed until more scientific evidence is available. Ironically, it was the recent questionable use of LSD experimentally which led to tightening of controls which in turn probably encouraged the use of the readily available morning glory as a substitute.

Summary

A brief review of psychotomimetic drugs with special reference to the morning glory seed, mentions d-lysergic acid diethylamide (LSD) as a drug with probable relationship, in effects produced, to the compounds isolated from this seed. An LSD-type reaction was observed in a 20-year-old girl after ingestion of seeds of Ipomoea tricolor. Her blood pressure and pulse rate responses were the reverse of those obtained by others experimentally although psychic phenomena were similar to the LSD reaction. The ubiquitousness of the seed of this popular flowering plant compels caution against usage and indiscriminate sale while posing the question of more stringent controls. Research is imperative to clarify its role pharmacologically.

PEYOTE AND MESCALINE[1]

Kent M. Pearson
The Narcotic Addiction Foundation
of British Columbia
Vancouver, B.C.

Peyote refers to a number of cactus plants containing pharmacologically active substances. The most important agent obtained from the cactus is the alkaloid, mescaline. Mescaline is found, along with other alkaloids in peyote (mescal) obtained from the dumpling cactus (Lophophora Williamsii), a small carrot-shaped spineless cactus which, in the United States, grows in the Rio Grande Valley.

The top of the plant is cut off and dried in the sun to form the peyote buttons, which are used by various American Indian tribes for religious purposes.[2]

Peyote is not a physically addicting narcotic as there is no valid evidence that abstinence symptoms occur when the drug is not available. Interest in mescaline, or peyote, centres on the fact that it causes unusual psychic effects and visual hallucinations. The effects of a single full dose of mescaline persist for about twelve hours. In some respects, the psychic changes are similar to those caused by minute doses of LSD.

Peyote usually appears as dried, leather-like buttons cut from the cactus plant, of the same name. The buttons may be chopped or ground and placed in gelatin capsules or rolled into balls. Peyote may also appear in liquid multiple dose vials, although this is rare. Its derivative mescaline usually appears as a crystalline powder often mauve in color in variously sized gelatin capsules or more rarely, as a liquid in ampules or vials.

Peyote is rarely encountered even in Vancouver while its derivative, mescaline, is supposedly quite common throughout B.C. This mescaline is generally synthetic as synthesis is easier than extracting the drug from the natural cactus.

As is the case with all illicit drugs purchased on the street, one of the greatest dangers stems from a lack of knowledge, on the users' part, of the purity and strength of the drug he is taking. Mescaline, for instance, may be mixed with LSD, amphetamine (speed), strychnine, or P.C.P. (peace pill), a powerful animal tranquilizer, damaging to the central nervous system in humans. Samples of mescaline analyzed in laboratories

---

1. Revised August, 1969.

2. For a fuller discussion of Peyote use see David F. Aberle, The Peyote Religion Among The Navaho, Aldine Publishing Co., Chicago, 1966.

invariably turn out to be LSD and usually "bad" or chemically incomplete LSD. Amphetamine or Speed is also sold as mescaline.

The changes in visual perception induced by mescaline are not always pleasant. Aldous Huxley called one of his books about mescaline *Heaven and Hell*, in recognition of the contradictory sensations induced by the drug. The "hellish" experiences include an impression of blackness accompanied by feelings of gloom and isolation, a garish modification of the glowing colours observed in the "heavenly" phase, a sense of sickly greens and ugly dark reds. The subject's perception of his own body may become unpleasant: his limbs may seem to be distorted or his flesh to be decaying; in a mirror his face may appear to be a mask, his smile a meaningless grimace. Sometimes all human movements appear to be mere puppetry or everyone seems to be dead. *These experiences can be so disturbing that a residue of fear and depression persists long after the effects of the drug have worn off.*

Cases have been reported to the Foundation of persons reaching severe states of depression with suicidal fantasies and yet unable to seek help because of paranoid delusions of persecution.

There is almost always initial nausea, with or without vomiting, accompanied by a dilation of the pupils and a generalized increase in perspiration. This is followed by a general slowing down of motor response and slow speech. With a few exceptions, both the appetite for food and sexual stimulation seem greatly reduced.

Under the influence of these drugs, the distinction between subject and object may be altered. Loss of personal identity in the extreme cases produced paranoid reactions for the person who is no longer able to distinguish between exterior ideas and those which originate in his own mind.

The bad trip, freak-out or bummer occurs when the user loses control and is flooded with intense anxiety, fearful visual and tactile hallucinations, suspiciousness, paranoid delusions, intense depression or a sense of losing one's mind. Initially, the tripper may attempt to control these feelings himself by concentrating on pleasant exterior stimuli -- paintings, music -- talking to available friends or taking downers -- sedatives and tranquilizers -- sold on the street for this purpose.

Among some individuals one of the most important constancies in perception is affected; the distinction between subject and object. A firm sense of personal security depends on knowing accurately the borders of the self and on being able to distinguish what is inside from what is outside. Paranoia is the most vivid pathological instance of the break-down of this discrimination; the paranoiac attributes to personal and impersonal forces outside himself the impulses that actually are inside him.

There is the case of a young woman ". . . who had previously taken pride in her mental solidity, and apparently (under the influence of the drug), the sensation of diminished control over her mind and body were terrifying. Within two hours she was writhing miserably with various somatic discomforts and shivering uncontrollably. Every large stimulus sent her into paroxysms of fright, and she began to misinterpret statements in a paranoid manner. Several months later she entered into psychotherapy and the peyote experience was mentioned as one of the precipitating stresses."[3]

Among the after-effects described by subjects, many have been left with a listlessness attributable to their hardened impression that most of their daily activity is a useless farce. Ambition was seen as somehow fraudulent, and accomplishing the business of the world, less important than previously. These same people may also note a physical component to their apathy that prevents them from becoming active.

There is a possibility that the drug may be dangerous for pregnant women --certainly the expectant mother should abstain from all unnecessary drug use.

Dr. William F. Gaber at the Medical College of Georgia, working with hamsters, tested injections of LSD and mescaline in pregnant females. Here is part of his findings:

		% of foetuses
Mescaline		
Congenital abnormalities	-	28%
Dead	-	5%
Runts	-	5%
Normal	-	62%
LSD		
Congenital abnormalities	-	8%
Dead	-	15%
Runts	-	10%
Normal	-	64%

In Canada, the Food and Drug Department lists peyote and mescaline under Section 'F' of the Food and Drug Regulations. This means that the drugs are legally obtainable only under a prescription. While possession of small amounts of the drug is not an offence, in itself, possession of large amounts may be construed as possession for the purposes of trafficking. Also distribution and importation by any other than qualified medical persons; e.g., doctors, pharmacists, etc., is an offence under the Health Act. Customs officers have a description of the drugs and are under orders to seize any which they encounter in the possession of unauthorized persons or in mail shipments.

---

3. Flattery, David S., and Pierce, J.M., M.D., Peyote. Berkeley Press, 1965.

PATTERNS OF HALLUCINOGENIC DRUG ABUSE[1]

Arnold M. Ludwig, M.D.
Mendota State Hospital
Madison, Wisconsin

Jerome Levine, M.D.
Psychopharmacology Service Center
National Institute of Mental Health
Bethesda, Maryland

The use of hallucinogenic (psychotomimetic, dysleptic, psychedelic) substances to produce altered states of consciousness is not new, but recently there has been increased interest and publicity given these agents. This renewed attention has been spurred by the discovery of several new substances, such as d-lysergic acid diethylamide (LSD), psilocybin, and psilocin, which have potencies far greater than the older agents (peyote, mescaline, teonanacatl, ololiuqui). These drugs have captured the imagination of many people who have speculated on their application in many different areas. Anthropologists have described the socially sanctioned use of some of these agents in "primitive cultures"; novelists have conceived of their role in utopian societies; and physicians have espoused their usefulness in treating mental illness and for the production of "model psychoses". Others have proposed or described their use as educational tools and for inducing religious "mystical" experiences. Still others have commented on their potential use for brainwashing and interrogation purposes.

It is not surprising, therefore, with the greater number of agents available and an increase in publicity, that there has been an attendant increase in the abuse of these substances. By "abuse" we refer to the self-administration of these substances by individuals who have procured or obtained them through illicit channels and/or taken them in medically unsupervised or socially unsanctioned settings. Although many reports both in lay literature and in scientific publications have alluded to and given fragmentary and, at times, sensational accounts of abuses, there has been a scarcity of information gathered systematically and directly from experienced (ab)users of these drugs. It is the purpose of this paper to present detailed information about the most frequently abused hallucinogenic drugs, their patterns of usage, their availability, addiction potential, and dangers.

The information upon which this report is based was gathered from extensive interviews with 27 "postnarcotic drug addict inpatients" who were being treated at the U.S. Public Health Service Hospital, Lexington, Ky. The patients were contacted by announcements on the bulletin boards of the male and female continued treatment wards stating that the authors would like to talk to any patients who had taken hallucinogenic drugs "on the streets". The 24 males and 3 females who responded over a four-month period did so entirely voluntarily and, as far as could be determined, were candid and honest during their interviews. All but one patient had considerable personal experience with these drugs, and most had personal acquaintance with many users of hallucinogens who were not narcotic addicts. The patients were assured that the information was being collected for medical purposes and that there were no legal implications whatsoever. The exact identity of sources, contacts, and associates was neither sought nor volunteered, but the types and general locations of sources and nature of associates were thoroughly discussed. There were no rewards or privileges promised or given for participating in the investigation, but many of the patients spontaneously thanked the authors for giving them an opportunity to discuss their experiences with these substances.

---

[1] Journal of the American Medical Association, January 11, 1965, Vol. 191, No. 2, pp. 104-108.

Specific Substances Used

Peyote.--This hallucinogenic substance is obtained from a cactus plant (peyotl) which is known botanically as Lophophora Williamsii and is largely found growing in the arid regions of Mexico. The plant grows mainly underground, but above the earth one finds the source of the drug, an inconspicuous group of button-shaped growths. The crude cactus contains more than ten alkaloids, among which are harmine, bufotenine, lophophorine, and mescaline.

Although the entire plant can be bought in dried form, it is more common to obtain the buttons alone. When the plant or buttons are green the hallucinogenic effects are apparently much diminished. One individual baked the green buttons on a cookie sheet in order to dry them more quickly and increase their potency. The buttons may be chopped up and placed in gelatin capsules or placed in a food blender and then rolled into little balls. It was also reported that peyote was acquired as a brownish-gray, cloudy liquid in a 30-cc multiple-dose vial.

The price for peyote is extremely variable and depends upon where it is bought. In Texas, peyote can be purchased for one cent per button or 40 cents for 100 buttons. It has been sold in Los Angeles for $1 for four buttons, or it can be bought in plastic sandwich bags, which contain about 25 buttons, for $10. In New York, ten buttons sell for $2 to $5, and a 10-lb. bag containing 10 to 15 plants might sell for about $200. A "full moon" (a button approximately four inches in diameter) sells for $3 to $4.

The oral route is by far the most common route of administration. Users of peyote have devised many ways to avoid its gritty, bitter taste, which often induces nausea, gagging, and difficult swallowing. In party settings, the buttons, either whole or chopped up, are often brewed with tea, and then the peyote tea is drunk. For a more intense effect, the cooked buttons are chewed while the tea is sipped slowly. It is also common for persons to drink tea, coffee, wine, or even milk while chewing the peyote to help avoid the bad taste. Ground peyote may also be put in large gelatin capsules and swallowed. Two patients reported "shooting" a liquid concoction of peyote intravenously.

Peyote is often referred to as "the button", "tops", a "moon", "cactus", "the bad seed", or simply as "P".

Mescaline.--A natural alkaloid which occurs in the Mexican cactus, peyotl, mescaline was isolated by Heffter in 1898. The drug is reported to be obtained on the illicit market as a crystalline powder which can be dissolved in water or placed in various-sized gelatin capsules, or as a liquid in an ampule or vial.

The price for the drug varies, depending upon location. The most common price reported was $5 per capsule, but it was also acquired for 50 cents per capsule in New York, NY, or for $7 per capsule in Miami, Fla. An ampule sold for $1.

Most often the capsule is simply swallowed, but it may also be taken with hot orange juice or hot cocoa. "Skin popping" (subcutaneous or intramuscular injections) and "sniffing" the drug have also been reported.

"Mesc" and "Big Chief" represent the only two known nicknames for this drug. Usually the drug is referred to by its proper name.

LSD.--Lysergic acid diethylamide is a semisynthetic derivative obtained from rye ergot. Its mental effects were discovered in 1943 by Albert Hoffman, a chemist, who accidentally ingested a minute amount of the drug. It is the most potent of the hallucinogenic drugs and is also referred to as LSD-25, lysergide, and delysid.

The drug, as obtained through illicit channels, is usually deposited on sugar cubes. It has also been obtained in liquid form in small ampules, in crystalline form (in capsules or by the spoonful), or as a small white pill. The drug was also distributed on animal crackers when certain enforcement agencies declared sugar cubes to be contraband.

In the Boston, Mass. area the drug was purchased for $1 per sugar cube, whereas in New York, NY, and Miami, Fla., a cube might cost from $2 to $7. In Harlem, gelatin capsules containing powdered LSD were bought for $2 to $10 depending on the size of the capsule. One quarter of a teaspoon of LSD (equivalent to seven to ten capsules) sold for $35 while one-half spoons sold for $70 to $75.

The most popular route of administration is oral. Either the powder is dissolved in water and drunk directly or dissolved in something sweet, such as a cola drink. The drug may also be "skin popped" or taken intravenously by means of a specially constructed eyedropper. One patient reported saturating cigarette tobacco with the drug and trying to smoke it, but the "high" was not as satisfactory as when the drug was taken orally.

The drug is usually referred to as LSD but has also been called "25" (apparently from LSD-25). In the Boston area the designation "crackers" (from animal crackers) was used, and when people considered obtaining the drug they often stated, "Let's get some coffee," because the drug was frequently acquired in coffee houses. In Harlem the drug was referred to as "deeda (?)" "the beast", "the ghost", "the chief", and "the hawk".

Psilocybin.--This is one of the two active substances isolated in 1958 by Hoffman from the fungus botanically known as *Psilocybe Mexicana Heim*. We were able to obtain only limited information concerning the illegal use of this drug because of its recent discovery. For the most part, the drug is still unknown to many drug abusers. It may be obtained in either a crystalline, powdered, or liquid form. The price is reported to be the same as that for LSD. There are no known nicknames for the drug.

Drug Combinations.--Many patients claim to have experimented with various drugs used in combination with the hallucinogens. Smoking marihuana ("pot") and taking peyote, mescaline, or LSD is the most common combination of drugs. In general, the patients claim that the marijuana helps produce a "greater relaxation", a "greater sharpness", a decrease in nausea, and accentuation of the more pleasant effects produced by the hallucinogenic agents.

Opinions differ about the effects produced by narcotic drugs used in conjunction with the hallucinogens. Some claim that heroin does not "mix" with these drugs and that the combination tends to make a person feel sick. Others have used heroin or hydromorphone hydrochloride (Dilaudid) to "level off" their experience, to enable them to go to sleep, to "bring [one] self down", to become "more earthbound", and to achieve "a slower drift".

One patient reported a very pleasant effect from the combination of mescaline and d-amphetamine tannate. Another patient claimed that he had used glutethimide (Doriden) and "goof balls" (barbiturates) to diminish the mescaline effects, while two other patients claimed they did not like the feeling produced by taking barbiturates along with mescaline or LSD.

Concerning the hallucinogenic agents themselves, it appears that they can be used interchangeably to produce similar effects. Although some patients felt that they could distinguish these different substances from one another, for the most part the various hallucinogenic agents tended to produce similar experiences and feelings in most individuals.

Availability and Source of Supply

As a group, the availability of the hallucinogenic drugs on the illicit market tends to fluctuate much more than either narcotic drugs, barbiturates, or amphetamines. While narcotic drugs are almost always available "for a price" and barbiturates and amphetamines are constantly and easily available, the hallucinogens appear only sporadically. This may possibly be due to the following reasons: (1) the demand for these drugs is not as constant since physical addiction and withdrawal is not a problem; (2) compared to narcotics there is not the great financial gain possible; (3) many fewer people use these drugs illicitly than use barbiturates or amphetamines (estimates run 5% to 10% of those using barbiturates and/or amphetamines); (4) fewer people desire to use these drugs on a "regular" basis; and (5) these drugs are not available by prescription and few physicians use them at all.

The most regularly available drug seems to be peyote since it can be obtained in large supply as the raw material. Mescaline, LSD, and psilocybin are available much less frequently and are listed in descending order of availability.

With regard to geography, the larger cities seem to provide the greatest ease of access to these agents. Although peyote is "naturally available" in areas of Texas and Mexico, these specific areas are difficult to find and "contacts" are difficult to make. New York, NY (especially Greenwich Village, Harlem, and lower Manhattan) is not only a source for local residents but apparently is a major point of supply for other areas, especially Miami, Fla. The other East Coast city in which these drugs were reported to be readily available was Boston, but small amounts were also available in Pittsburgh, Baltimore, and Chicago. On the West Coast, Los Angeles, San Francisco, and San Diego were centers where these drugs were available.

The source of supply, economics and method of distribution of the hallucinogenic drugs differ from the narcotic drugs. For example, it is quite common for friends to share hallucinogenic drugs with each other, and frequently they are actually dispensed at parties much in the manner that one might offer a guest an alcoholic drink. This is very rarely the case with narcotic drugs. When the hallucinogens are sold, they are not sold by "pushers" (narcotic drug peddlers) but rather by individuals who deal in barbiturates, amphetamines and "reefers" (marijuana). Pushers, in fact, tend to look down on "pill addicts", consider them to be unreliable, and want as little to do with them as possible. The hallucinogenic drug traffic is not considered as "cutthroat" as that for narcotic drugs (especially heroin) and, by and large, business dealings tend to be friendly and on a personal basis rather than purely for financial gain. In fact, "drug bonuses" are sometimes included in the transaction.

As mentioned previously, the "original" source of supply of peyote is in certain areas of Texas and Mexico. Peyote was acquired by some patients from certain Indians in Mexico and from Mexican settlers and Indians in Texas. One patient of Mexican extraction claimed that his people viewed peyote as a religious drug and there were no real taboos on its use. Other patients were able to acquire the drug by simply ordering it from a "cactus company" in Texas or purchasing it at certain grocery stores in New York City.

Mescaline, being a purified or manufactured substance, was not available "naturally". Some patients reported that they had been able to order the drug directly from a pharmaceutical house or through local drug stores. There were also reports of the drug being synthesized by college students in New York and in the Boston area. One patient actually saw the drug being made and did ingest some and found the results to be identical to mescaline he had obtained previously from other sources.

With respect to LSD and psilocybin, the source of supply was not clear. These drugs seem to be available on a very sporadic and more limited basis than mescaline or peyote. There did not seem to be any established sources where these drugs could usually be obtained.

Patterns of Usage

There appear to be three main patterns of hallucinogenic drug use. First, there are the people who are primarily and preferentially narcotic drug addicts who have used the hallucinogenic agents on one or several occasions mainly for "kicks" or "curiosity". They seldom seek these drugs and tend to use them infrequently, as for example when these agents come their way through a friend or at a party. Rarely do they take the hallucinogenic agent alone but tend to take it after a "fix" with heroin, hydromorphone hydrochloride, morphine, or some other narcotic drug to which they are addicted at the time.

Second, there are the group of people, aptly described by one of the informants as the "professional potheads", who have had extensive experience with various drugs. The most commonly used drug by this group of people is marijuana (hence the name "potheads"), but amphetamines and barbiturates are also popular. Many have had some experience with the narcotic drugs, but on the whole they tend to avoid the opiates. "Creative" and "arty" people, such as struggling actors, musicians, artists, writers, as well as the Greenwich Village type of "beatnik", tend to fall in this category. The "frustrated", "curious", "free thinkers", "nonconformists", and "young rebels", who are seeking a temporary escape also comprise this class of hallucinogenic users, according to our informants. Although the "professional potheads" enjoy the euphoric effects produced by smoking marijuana, they also tend to relish and seek out the feelings of greater insight, inspiration, and sensory stimulation and distortions which the hallucinogens may produce. They are in constant search of agents to rouse them from their apathy, to make life more meaningful, to overcome social inhibitions, and to facilitate meaningful conversations and interpersonal relationships.

Hallucinogenic agents are used by these people mainly on weekends (often "four-day weekends") or on special occasions, such as parties. It is rare for users to take drugs alone. They are mainly taken with friends or at intimate gatherings of people. The parties are of all varieties. Frequently, little conversation takes place while people are under the influence of these drugs, but they claim to experience a greater closeness and rapport with the other members of the group. One patient described having attended "basket weaving" and "lampshade making" parties where all members, under the influence of these drugs, squatted on the floor and silently attended to their tasks. At another type of party, overt sexual activities were carried out. Folk singing was also common. To quote another patient, "Mostly the people sit around trying to dig each other . . . everybody's sitting around and waiting, like on New Year's Eve, for something to happen."

Third, there are a small number of people who take the hallucinogenic agents repeatedly over a sustained period of time to the exclusion of all other drugs. The frequency of drug use during these periods of time is variable. One patient took peyote four times a day over a two-year period, while another patient took it two out of every three days over a three-month period. One patient took mescaline every day for two separate 15-day periods, while another took mescaline every two to three days over a six-month period. Still another patient took mescaline over a five- to six-month period, but he could not estimate the frequency of dosage. The patients also reported having friends who took psilocybin and LSD for long periods of time.

Generally, these patients seemed different from those in the second group, who primarily smoke marijuana. They did not take these drugs in a group for social purposes but used them mainly as a means of attaining some personal, esoteric goal. One patient talked of having achieved an increased sensitivity to nature and a greater insight into himself after prolonged peyote usage. While living by himself on Big Sur in California, he claimed to have achieved a "Christ-like state of mind" and a greater feeling of altruism. Another patient stated that as he kept taking mescaline, he was able to control his experience and attained a state of mind in which "every little thing is projected large", where he was able to see the negative and positive aspects of everything, and where "everything is real." A third patient, of Mexican extraction, kept taking peyote to "find God."

Effect on Sexual Functioning

Little is known or has been reported on the influence of the hallucinogenic drugs on the sexual drive and sexual pleasures. In general, it appears that the hallucinogenic drugs do not seem to either stimulate or diminish sexual drive. While under the influence of these drugs individuals tend to be more preoccupied with their own psychological state or their subjective experiences than with finding a sexual partner. However, once the idea of sex is suggested or comes to mind, sex not only can be consummated but the nature of the sexual act and the feelings associated with it change. The pleasures associated with the sexual act are reported to become much more intense. Although it takes longer to reach climax, the orgasm is greatly prolonged and heightened. Some patients claim that "there is nothing like sex" under the effect of these drugs; "It's just wild." For example, "If you fondle a woman's breast, she becomes the whole breast," and when orgasm is finally achieved, "it feels as though it's spilling right out of you."

In contrast to these claims, two patients found that peyote tended to suppress the sexual drive and prohibited climax. One of these stated that his organ "becomes numb" under peyote.

Addiction Potential

Almost all patients claimed that the hallucinogenic agents, unlike the narcotic and barbiturate drugs, were not addicting in the "physical" sense. Even after prolonged, sustained usage, no drug withdrawal symptoms were experienced, except perhaps for a short period of "let-down".

Although these drugs were not physically addicting, most patients claimed that they were or could be "psychologically addicting" or that habituation could take place. Some of the patients' views on this matter were revealing. One claimed that these drugs differ from heroin in that "you addict yourself with the hallucinogens, whereas heroin addicts you." Another stated that a person becomes "addicted to the feeling and not to the drug." Other patients felt that a person had to have a psychological disorder to become psychologically addicted to the hallucinogens, mainly because the experience was more like an ordeal than a pleasure. Also, the hallucinogens "make a person ask questions about himself", while narcotics "stop" thinking. A cogent statement pertaining to the problem was given by a patient who said, "Let's be practical. . . . If a person uses a drug five days a week, every week, he is addicted."

There was more divergence of opinion among the informants concerning the matter of drug tolerance. Although Isbell et al. have demonstrated experimentally that tolerance to LSD develops rapidly, many patients claimed that this was not their experience. Generally, they stated that the first experience with the hallucinogens tends to be the most intense and that the intensity diminishes somewhat with increased exposure to the drugs, but they feel they can reach virtually the same "high" without increasing the amount of drugs taken. Several patients claimed that "tolerance works in reverse" with the hallucinogens in that a person becomes more susceptible or sensitive to their effects and, in time, can achieve the same "high" or effects on an even lower dosage. Of interest was the statement that they could almost slip back on occasion into the same frame of mind even without taking the hallucinogenic agent. Other patients felt that they had definitely become tolerant to the effects of mescaline and peyote and cited the fact that with increased usage the drug effects were less intense, lasted for a shorter time, and that they had to increase the dosage to achieve a suitable "high".

Reported Dangers

Almost all patients who had used the hallucinogens felt that they were relatively safe. None had heard of anyone dying from an overdose or of any consistent harmful effects. Most of the dangers seemed to be related to the psychological reactions to the drugs and the poor reality-testing which the drugs may produce, but the patients did not seem to take these very seriously.

One patient reported that the first time he took LSD it was an "overdose", which made him feel that he was going insane. He became so frightened by this feeling that he ran his head into the wall to stop the experience, asked a friend to knock him out (his friend tried to cooperate), and later, on his way to the hospital, experienced homicidal impulses toward the cab driver.

Reports of people acting out homosexual impulses, becoming more withdrawn, depressed, and paranoid when under the influence of these drugs were given. In general, these reactions cleared after the drug effects wore off. However, there were also several reports of people going "insane" after prolonged hallucinogenic drug usage, but these people were reported to be "weird" even before they started on these drugs. Many felt there was a greater danger of going "insane" after prolonged amphetamine use than after prolonged hallucinogenic drug use.

There were several reports of another type of danger associated with the poor reality-testing produced by these drugs. For example, one patient reported that he knew a person who tried to stab himself since he believed himself to be invincible. Another patient told of someone taking mescaline who tried to jump off a bridge since he believed his mind and his body to be separate and that, even if his body should die, his mind would live on. Still another patient reported that a friend once tried to jump out of a window because he believed his body to be weightless. There are also reports of people walking out into the ocean but being stopped before any serious harm could occur. Two patients reported near accidents while driving under the influence of hallucinogens.

Summary

This report of hallucinogenic drug abuse is based on extensive interviews with 26 patients who have used these drugs and one patient who had intimate knowledge of their illicit use. The most frequently abused substance was found to be peyote, followed closely by mescaline, with LSD and psilocybin far less frequently used. Availability of these agents was sporadic and, in general, limited to large cities. Their distribution, economics, and pattern of use were different than those of the opiate drugs, and the greatest number of people who abused them also used marijuana, amphetamines, and barbiturates. The hallucinogenic drugs' addiction potential, dangers, and influence on sexual function are also reported.

THE BIOCHEMISTRY OF PSYCHOACTIVE DRUGS[1]

Leo G. Abood, Ph.D.
Professor of Biochemistry, School of Medicine
Professor, Center for Brain Research
University of Rochester

I am very pleased to be here and try to contribute to the accumulated ignorance in this field of knowledge. We know so little about how the central nervous system functions, but I am going to make an effort to describe how some of the psychochemicals may conceivably act on the higher central nervous system, and at least discuss some of the present-day theories regarding drug addiction.

As was pointed out earlier, the brain is simply a complex chemical system, perhaps the most complex in the universe; and in order to understand how chemicals will interact with such a complex chemical system we have to know something about what the brain is chemically and the peculiar chemical characteristics of psychochemicals which make them do what they do.

Drugs, especially the psychochemicals, do not produce the same effects in different individuals. Some individuals are stimulated by such drugs as barbiturates and morphine, while the majority of people are sedated. It is now known that there are genetic factors that help determine drug responsiveness. Other determinants include dosage, physical health, psychological constitution, environmental setting, and past and concurrent drug usage.

Lions, cats, and other felines respond to drugs in one way, and dogs and other canines will respond in an entirely different way. There are classical examples of this. Barbiturates, for example, will give a lion a bellyache. I am sure you have all heard the story about two lions who walked into a bar and ordered a drink. Shortly afterwards a luscious blonde entered and took a stool opposite them. One lion said to the other lion, "I think I will go over and eat that blonde," so he promptly went over, devoured the blonde, and came back. In a little while he began to develop a severe bellyache and said, "My, I feel awfully sick." The other lion said, "Well, it must have been that 'bar-bitch-u-rate'."

There are so many classes of psychochemicals that one can never hope in a day's time to cover the general field. In exploring the pharmacological

---

1. Paper presented at National Association of Student Personnel Administrators Drug Education Conference, Washington, D.C., November 7-8, 1966. The NASPA Drug Education Project is supported by Contract No. FDA 67-3, with the Food and Drug Administration, Dept. of Health, Education and Welfare.

literature one finds that all drugs, with few exceptions, affect some part of the nervous system. The reason why many drugs do not appear to have an action on the nervous system is because they cannot enter the nervous system from the blood stream. Between the blood and the brain there is a barrier called the blood-brain barrier, and this is the kind of restrictive filtering system that only allows certain types of molecules to enter the brain.

As a matter of fact, there are many substances normally present in the bloodstream to which the brain is extremely responsive and which, under normal conditions, cannot enter the brain. Potassium is an example. The brain is extremely sensitive to the potassium in the blood, which normally cannot enter. If, however, something happens to alter the blood-brain barrier, as during fever, certain infections, and severe trauma or shock, then the brain becomes responsive to potassium and other constituents of the blood.

The other thing we have to keep in mind is that the brain is sensitive to its own immediate chemical environment. During the normal course of metabolism there are hundreds of substances produced by the cells of the brain which are essential to brain function. Alterations in the rate and character of this "metabolic pattern" can lead to profound changes in brain function. An important group of such substances, which the present discussion will focus on, fall in the class of "chemical transmitters". It now appears that many of the psychochemicals exert their action by influencing the production and action of the chemical transmitters. Although there are many known chemical transmitters, there must exist so many more about which we know nothing.

Some chemical transmitters are needed to stimulate brain activity and others to suppress it. A drug which interferes with the action of the stimulating transmitter would, therefore, be expected to slow down brain function, while the opposite is true for a drug which affects the inhibitory transmitter. The question comes up as to why LSD produces hallucinations and amphetamine merely stimulates; or why morphine is a narcotic and analgesic while barbiturates produce sleep. There are many reasons why drugs possess such pharmacological specificity. One is because the peculiar chemical characteristics of the drug allow it to go to one part of the brain rather than to another. Another reason is that the drug affects systems in the brain which are localized in certain brain structures. With the evolutionary development of the central nervous system from lower to higher forms there was a concurrent biochemical or chemical evolution, so that specific kinds of chemical transmitters became associated with specific areas of the brain. By virtue of its chemical resemblance to a transmitter, a drug can be made to exert an action on those areas of the brain where the transmitter happens to be located.

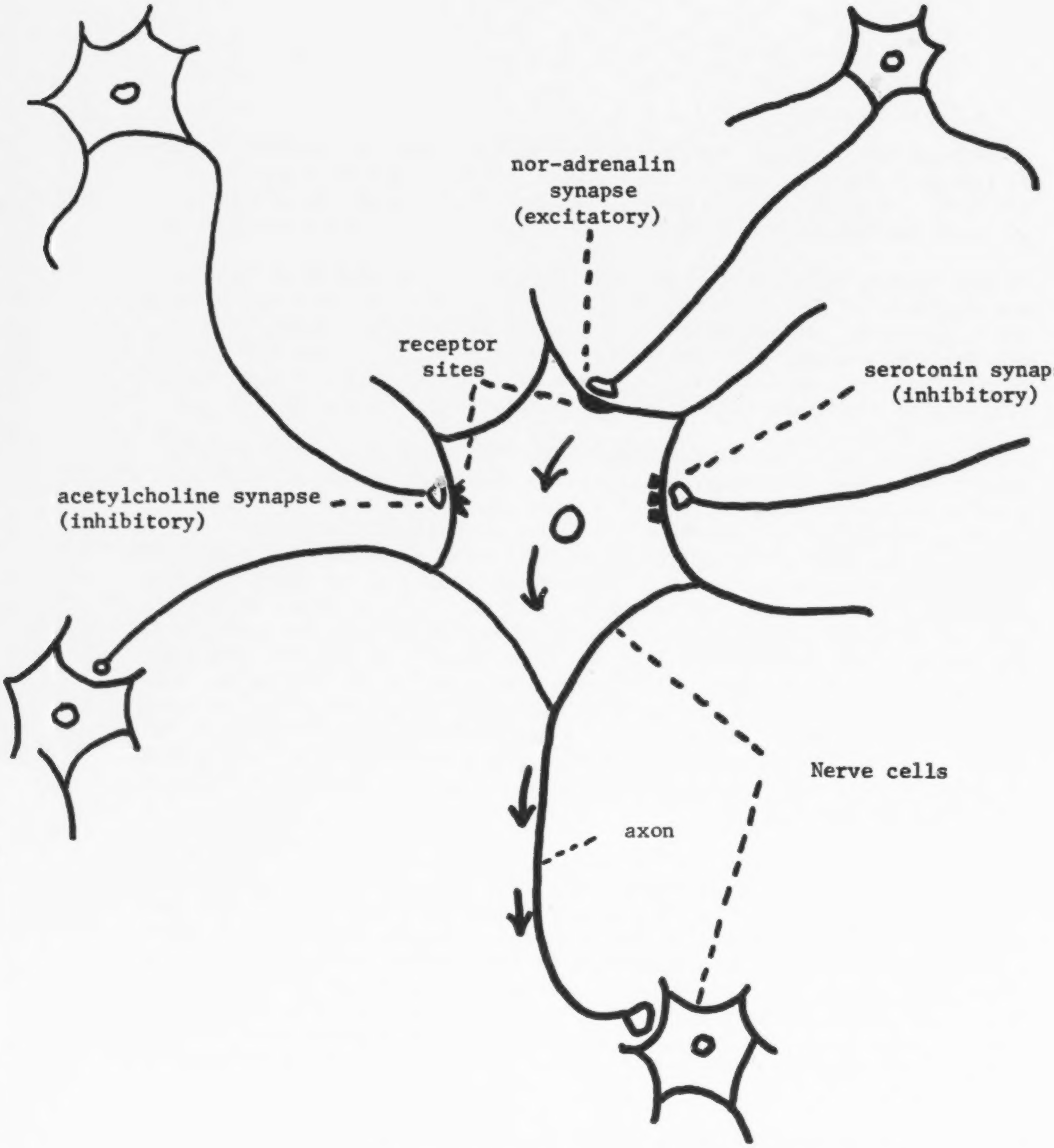
Before proceeding we must say something about the function of the nervous system and how the chemical transmitters are involved in such function. In the laboratory the functional activity of the nervous system is examined by recording the electrical activity of the nerve cells. Such events as the transfer of messages, the storage of information, the coding of information, and all the various parameters used to describe the brain as though it were a computer are somehow tied up with this electrical activity. A great deal is known about how this electrical activity is produced and the physicochemical events underlying such activity.

In the nervous system there are some rather special membranes; these are responsible for generating the electrical activity by which we gauge nerve function. If one examines a section of the brain under the electron microscope, he readily sees that the brain is made up largely of membranes in complex arrays. It is safe to say that the functional activity of the brain takes place primarily at membrane surfaces.

The way in which an electrical impulse is produced in a nerve cell is as follows: The cell membrane separates two solutions which differ greatly in their concentration of sodium ions. If something happens suddenly to change the membrane structure so that it cannot maintain this (thermodynamically) unstable concentration difference, the movement of sodium ions inward creates an electrical potential or impulse. The membrane is like a dam, and before a nerve impulse can occur it must open up to allow the electrically charged sodium to move inward. It is the movement of the ions which creates the electrical current that is recorded, just as the movement of electrons creates the electrical current. This is briefly how electrical activity is produced in the nervous system, except that millions of cells and membranes are interacting in complex patterns, the whole system becoming almost infinite in magnitude. It is said that the brain contains 10^9 cells and is capable of storing 10^{15} bits of information.

A major question confronting investigators in this field is the question of the membrane's chemical composition, and what it is that punctures the holes to allow ions to flow across. Something has to open the dam up, i.e., to produce holes in the membrane. We are beginning to understand something about this mechanism in the central nervous system, where most electrical transmission and excitation occurs at synapses. These are little connections on the surfaces of cells. One cell could have as many as 10,000 synapses, each coming from another cell, so one can readily visualize the complexity of the system, even in terms of a single cell.

In the chart on the following page I have indicated a scheme which might show how these synapses work and what the particular role of the chemical transmitter is. The big circle in the center is a nerve cell, and there are synapses at nine o'clock, one o'clock and three o'clock, ending at the cell surface. Within these synapses are tiny vesicles, little spheres containing chemical transmitters. As an electrical impulse enters the synapse from another cell, it causes the vesicles to break up and release chemical transmitters. Examples of such transmitters are acetylcholine, nor-adrenalin, and serotonin, all produced by the nerve cell within or very near to the synapse. By some obscure mechanism the transmitter is released and diffuses across the membrane of the synapse onto the cell surface where it then produces a nerve impulse by permitting the flow of sodium ions.


nor-adrenalin synapse (excitatory)
receptor sites
serotonin synapse (inhibitory)
acetylcholine synapse (inhibitory)
Nerve cells
axon

CHEMICAL TRANSMITTERS IN NERVE EXCITATION

Nerve cells are linked together by means of connectors called "synapses." As an electrical impulse from a nerve cell reaches a synapse, it promotes the release of a chemical transmitter stored within the synapse. The transmitter diffuses to the receptor site and causes the second cell to discharge its own impulse. Some of the synapses release "excitatory" transmitters (e.g., nor-adrenalin), while others release inhibitory ones (e.g., acetylcholine and serotonin). If only an excitatory synapse is activated, the cell will "fire"; while the simultaneous activation of an inhibitory synapse will either prevent the cell from firing or modulate its response. A drug such as LSD occupies the receptor site at the serotonin synapse and, thereby, interferes with the action of the inhibitory synapse. The net result is an "overactivation" of the cell, since the suppressive or modulating influence is eliminated. (The arrows indicate the direction of the nerve impulse.)

I have depicted three types of synapses on this particular cell, each of which is represented differently, suggesting that they are distinct and specific in some way. The region on the cell surface in contact with the synapse is called the receptor site. One of these receptor sites may be responsive to the chemical transmitter acetylcholine. Acetylcholine has to be released by the synapse before the cell will fire. The second receptor site can be assumed to be sensitive to another transmitter, nor-adrenalin, and the third to be sensitive to serotonin.

In what ways can drugs or other factors influence this system, assuming this to be a correct model for chemical transmission in this particular cell? Well, a drug could resemble acetylcholine chemically so that the receptor site is confused and cannot differentiate between acetylcholine and the drug. Consequently, it latches onto the drug as readily as it does acetylcholine; however, the drug produces no response at the receptor site, because it does not fit properly. Since the receptor site is now occupied, acetylcholine in turn cannot exert its effect. An incorrect key is in the lock, and although the lock won't turn, the proper key cannot be inserted in the lock.

There are other ways in which drugs could interfere with the transmitter-receptor system. They could somehow affect the release of acetylcholine, or nor-adrenalin. As the nerve impulse releases the transmitter, a drug may somehow hamper the release mechanism. Morphine and related narcotics may be acting in this manner, i.e. they may prevent the release of acetylcholine.

On the other hand, a drug, instead of interfering, can accelerate the release of the transmitter. It can force the synapse to overexcite the cell by releasing more acetylcholine or nor-adrenalin. Examples of drugs which accelerate the release of nor-adrenalin are such stimulants as dexedrine and ephedrine. Still other drugs may act bv preventing or accelerating the destruction of the chemical transmitter, thereby prolonging or shortening the duration of action of the transmitter.

An enzyme is usually involved in destroying the chemical transmitter once it has been released and exerted its action on the cell surface. If a drug interferes with the action of this enzyme and thereby prevents the transmitter from being destroyed, the cell continues to discharge nerve signals. There are many drugs which do this. A number of stimulating drugs used in treating depression act in this manner. They inhibit the enzyme which destroys the transmitter.

There is still another important way in which drugs can act on this system. Instead of confusing the receptor site, a drug may act on the site in very much the same manner as does the chemical transmitter, and actually excite the cell. There is, however, one thing wrong. There is an enzyme system or a mechanism for handling the normal chemical transmitter but not the drug which mimics the transmitter, so the system then begins to behave in an unorthodox fashion. I could go on and on describing other mechanisms and giving examples, but time does not permit this. Suffice it to say that most of the psychochemicals we know of act on one or more of these systems in a manner similar to what has been described.

I would now like to illustrate how some of the psychochemicals may act. LSD is believed to block the action of serotonin by occupying the serotonin receptor site. Consequently, serotonin cannot act, and this throws the serotonergic system out of whack. There are other hallucinogenic drugs, which are more powerful in many respects than LSD, which block the action of acetylcholine at the receptor site and which will prevent acetylcholine from acting. Acetylcholine in some parts of the brain may be an inhibitory transmitter, and by blocking its action the brain may actually be stimulated. Excessive stimulation may then result in hallucinations and other behavioral aberrations.

Chlorpromazine, a tranquilizing drug, blocks the action of nor-adrenalin at the receptor site. Since nor-adrenalin is an excitatory transmitter, a drug which interferes with its action would be expected to depress the activity of the brain. Presumably, in the psychotic, disturbed patient there is an excessive output of nor-adrenalin or related stimulatory transmitters. These are some ways in which drugs can act on the central nervous system but by no means the only ways.

The action of a drug like morphine is diverse and extremely complex. Morphine is used in medicine to alleviate pain, i.e., as an analgesic. In some individuals it produces sedation and sleep, and in others stimulation and euphoria. Morphine evidently asserts its action in part by influencing those enzyme systems in cells which are responsible for the production of energy. In biological systems this energy takes the form of adenosinetriphosphate (ATP). By interfering with the production of ATP, morphine prevents nerve cells from carrying out their normal function. Morphine is also known to actually substitute for certain enzyme systems and other essential chemical processes in cellular metabolism. This fact has led some people to speculate that morphine produces a physical addiction because of this biochemical dependence that results from continued usage. By the same token, sudden withdrawal of the morphine from an addict may be fatal because of the essential requirement of morphine for cellular function in the addict.

Barbiturates are equally diverse and complex in their action, and they too interfere with the production of ATP. Like morphine, barbiturates appear to interfere with certain enzymes involved in the utilization of oxygen by the cell, but barbiturates act on another important aspect of cell function and that is at the cell membrane.

I spoke earlier of the blood-brain barrier, the separation between the blood and the brain which is so essential for normal brain function. There are people today who believe that many drugs do not act directly upon the nerve cells in the brain but merely upon this blood-brain barrier, by altering its structure characteristics in such a way that certain psychoactive substances in the blood stream can now enter. For a while it was argued that even LSD acted in this fashion, and it is still possible that LSD probably acts in part by influencing the blood-brain barrier.

The brain is comprised of cells other than nerve cells and these are called glia. There are many types of glial cells whose function is largely one of supporting the nerve cell. Drugs will affect the metabolism of the glial cells, but although we don't know how this relates to brain function, the nerve cell cannot function properly without glia.

We are concerned today with rather specific psychochemicals. I looked over the list of drugs that was handed out to you, and it merely focuses attention on those drugs which are presently being abused and misused on college campuses. But the number of drugs which pose potential dangers and problems is much greater than what is contained in this list.

There are many narcotic drugs which are available to clinicians and investigators which are much more potent than morphine. To give you an example, there are narcotics which have recently been developed which are 10,000 times more potent than morphine, and it is believed that one exposure to a narcotic of this type will produce addiction. The other alarming thing is the fact that the chemical nature of these narcotics is, in many respects, more simple than morphine, so one with training in organic chemistry could go down in his basement and, perhaps, synthesize such substances.

One thing that has surprised me over the years is why more drug abusers have not taken to synthesizing their own drugs. Why bother about going to the pushers and others to get narcotics when many could be synthesized with a minimum of knowledge and assistance? With greater sophistication and technical training what is to prevent our young people in colleges from doing this? Indeed, attempts today are being made to synthesize LSD. If a person has the recipe for making it and has the starting products, he could come up with a product that might be 5-10% pure. Such a preparation may contain many dangerous impurities. There have been reports of students attempting to synthesize LSD. Much of the illicit LSD that is being distributed in this country and elsewhere is probably of this nature.

During and immediately after World War II, Japanese farmers were synthesizing amphetamines by the pounds in their own homes. Amphetamine addiction was a rampant problem in Japan at that time. Amphetamine (dexedrine) can be made by anyone with limited knowledge in organic synthesis.

This is the problem we are confronted with. What about all the drugs that young people do not presently have knowledge of or access to, which are so much simpler in their chemical nature that they can be readily synthesized. I am reluctant to mention this, but we know of simple substances which will produce psychoses lasting for days, which a sophomore in organic chemistry can synthesize.

As somebody pointed out, many of the students in colleges are brighter than we, and they would have no difficulty in making use of this knowledge if they were so disposed or if the circumstances were made available to them. I am merely pointing out that the present dangers in this area are extremely great, but the potentialities are even greater.

As knowledge of the relationship of chemical structure to pharmacological activity continues to improve, chemists will be able to develop more potent and unique psychotherapeutic drugs of immeasurable value to clinical medicine. The temptation to self-experiment with such novel psychochemicals will, I am certain, continue to increase.

Last but not least there is alcohol. Alcohol is the simplest of all drugs. It is the most readily available and among the most dangerous of all drugs. Yet, we do little to restrict its use and dissemination. There are drugs which will do what alcohol will do. In all likelihood we can expect more such drugs to be developed in the future. This should make our life both more interesting and considerably more complicated.

Our knowledge of how drugs act upon the nervous system is expanding at a phenomenal rate. Such knowledge not only leads us to the development of new and more powerful drugs, but aids greatly in our understanding of the nervous system. The psychochemicals have helped upen up the brain to the experimentalists in a way probably not possible before.

This is the greatest use for the psychochemicals, and for this reason we must continue to have ready access to such substances in the laboratory. Since the problem of drug abuse helps curtail this effort, it is essential that we try to understand the problem and correct it as much as possible.

HAIGHT-ASHBURY MEDICAL CLINIC

558 Clayton Street
San Francisco, California

BACKGROUND

During the past year a sub-culture evolved in the Haight-Ashbury district of San Francisco consisting of young people from all areas of the country. They have been attracted by the tremendous amount of publicity regarding philosophical freedom, the possibility of attaining a feeling of togetherness with others of like beliefs, and the availability of psychedelic drugs. Feeling alienated from their former environment, they believed that the Haight-Ashbury offered a group situation in which they could share their ideals with others of like identity and refute the identity that had been stamped upon them. The resultant withdrawal from what has been termed the "mainstream of society" has led to a further alienation from society-at-large and the development of mutual mistrust. The sub-culture has been estranged from the main culture.

Living communally, these individuals express a philosophy of universal love and peace, and feel that the only practical way of sharing this with others is by direct action rather than by example. An integral part of their social existence is the understanding of others; the use of psychedelic drugs for self-understanding is felt to be the most valid method of providing a basis for this understanding of others.

PROBLEM

This situation has attracted thousands of confused, searching young people. The current population of 15,000 is expected to increase by 50,000 within the next few weeks; indeed, this influx has already begun. The immediate effect of such saturation is an ever increasing housing shortage which has already reached an acute level. The resultant homelessness carries with it the deprivation of normal facilities for sleeping accommodation, sufficient food preparation, and a minimum of personal cleanliness. Though their outward philosophical aim is the achievement of love and peace, individuals in the Haight-Ashbury, being human, are subject to the undesirable human traits of envy, jealousy, and hatred. These feelings find expression primarily in an alienation from society with a corresponding conscious rejection of regular social standards. Primary rejection finds its manifestation in wide-spread drug use. In addition, an increasing incidence of immaturity has led to a high incidence of drug misuse and the creation of many drug-related problems, ranging from disorientation to psychological addiction.

Although the illegal activity associated with drug traffic has brought about a general cohesiveness within the subculture on the one hand, it has on the other caused increased alienation from the authority figures of the main culture. This increased alienation has precipitated a withdrawal from established institutions, including doctors, hospitals, schools, churches, and professional counselors. The subculture, however, has not provided itself with adequate facilities to replace these institutions, and therefore a great many individuals are going without having their basic needs fulfilled. Although the motivations of the subculture rely on a "transcendent realization and comprehension of life", as opposed to accomplishment and production, human necessity dictates that these needs must be cared for.

PROPOSAL

Existing facilities for drug abuse treatment are already filled to capacity with acute alcohol and opiate patients. At this time there is need for increased facilities for treatment of these important social problems. How then can the differentiated problems associated with psychedelic drugs be treated when these basic problems have not yet been sufficiently dealt with by existing facilities?

Were there a sufficient number of existing facilities, treatment of the drug-oriented problems in the Haight-Ashbury could not be sufficiently undertaken without a radical change of attitude. The prevailing authoritarian attitude is to solve the problem by forcing the involved individuals to move elsewhere. This is the stated policy of the officialdom of the city and county of San Francisco. It opposes what is needed: the recognition of the specialized problems of these young people, the reestablishment of communication between the individuals and social institutions, and also continued research into the nature and treatment of specialized problems. At this time, however, there are not sufficient existing facilities.

Our initial experience shows that the primary drug use in the Haight-Ashbury includes LSD, marijuana, methedrine, amphetamines and methamphetamines, DMT (dimethyltryptamine), peyote (and its derivative mescaline), and psilocybin and psilocun. Existing facilities are equipped with neither the specialized staff nor the equipment necessary for the treatment of problems caused by the use of these psychedelic drugs. The lack of adequate facilities and the corresponding insufficient stop-gap measures taken by local authorities have caused additional conflict between individuals and the community at large (i.e., the police).

On June 6 we opened a medical clinic offering an integrated program consisting of related services. In dealing with the widely varying problems of the Haight-Ashbury area there will be few aspects of the indigent individual's situation which will be excluded. The clinic was originally meant to be used exclusively for the treatment of drug associated problems. However, it has become apparent that what is required is a complete medical clinic offering treatment for all medical problems. Individuals in the Haight-Ashbury have not been making use of existing medical facilities due to lack of trust, lack of knowledge as to the location and function of facilities, and lack of transportation (i.e., no car, no money for public transportation).

The primary objectives of the clinic include the treatment of acute medical problems (i.e., first aid and emergency), dental problems, and acute and chronic drug-associated problems. Extensive use of referrals is made; dental surgery will be done (for the time being) at another private clinic, medical emergencies requiring surgery will be sent to County Emergency Hospitals, psychiatric patients will be referred to private offices of individual psychiatrists participating in the program, and cases of veneral disease will be referred to city clinics. In other words, the clinic will provide, in one manner or another, the treatment of every type of medical need.

Recent experience with treatment of drug-associated anxieties suggests that treatment is possibly before the individual has reached the acute psychosis stage.

The peculiar properties of psychedelic drugs such as LSD make it impossible for all individuals to take them safely. LSD, for example, is widely available, yet there is no known way of predicting its effect on a particular individual. Individuals who take LSD and have a bad experience will be treated with a minimum of drugs and a maximum of personal care (i.e., discussion with a trained person in an effort to solve conflicts). In general, personal care will be used rather than drugs when possible.

Secondary objectives of the clinic, though subordinated to personal treatment, will be given high priority. These will include the establishment of an educational facility in cooperation with San Francisco State College in particular for continuing research into the causes and effects of drugs and drug-associated problems. There will also be group confrontations in which individuals face their problems in group discussion with the supervising leadership of a psychiatrist.

Research, though secondary, provides a main motivation in the continued existence of the clinic. It should be noted that much research can be accomplished with a minimum of additional funds since the material for research is readily available and since the clinic was established with research as an integrated function.

The clinic will also serve as a social arbiter between the main culture and the subculture through the use of referrals. In dealing with an alienated minority, yet acting as an agent fulfilling a normal social function, the clinic will endeavor to maintain standards acceptable to all. In dealing with the individual, a maximum amount of confidence will be sought through a certain informality both in decor and manner. Personal confrontation is kept to a minimum by keeping the need for personal information at a minimum, and by maximum care for the confidential character of personal records and problems. This will allow the maintenance of mutual trust. The use of functional physical facilities, the maintenance of high medical standards, the use of community resources for non-medical positions, involvement in existing projects, and the use of adequate administrative standards will not be sacrificed in the effort to induce trust. Personal cleanliness of volunteers and standard office health procedures are maintained. The patient-doctor relationship will be informal, yet functional. Though the greatest possible use of volunteer registered nurses is being made, the legal requirements of the city and state are being consciously maintained. At present, some one hundred nurses and fifty-five doctors have offered their services, as well as forty staff volunteers.

ORGANIZATION

A non-profit organization has been organized, having a Board of Directors (David E. Smith, M.D., Robert Morris, M.D., and Robert Conrich, Administrator) and a large advisory board encompassing a widespread variety of prominent professional people. They have formulated a general policy to be followed by the administrator, Robert Conrich. Therapeutic policy is controlled by the medical director, David E. Smith, M.D., who is director of the Alcohol and Drug Abuse Screening Clinic at San Francisco General Hospital, the state consultant for court cases involving drugs (expert witness) and is currently teaching the Drug Abuse course at the University of California Medical Center in conjunction with a position he holds in the Pharmacology department.

STAFF

All staff members are duly qualified for the positions they hold. The administrator, Robert Conrich, is experienced in business, personnel, and community matters. The staff of physicians consists of numerous part-time volunteers and several who receive nominal compensation. At present we have the services of nurses twenty-four hours a day. All other positions are filled by competent community volunteers.

LOCATION

The clinic is located in a former dental office at 558 Clayton Street (phone 431-1714). Although not an ideally sized facility, this should present a satisfactory location. Necessary repairs are being made and a research area is being secured.

OPERATION

A twenty-four hour, seven-day-a-week operation is necessary. At present, routine medical care is being offered every evening with several doctors and nurses providing treatment. Nurses and doctors are also available during daytime hours, yet on a non-scheduled basis. Night time staff consists of several non-medical volunteers who receive patients and telephone calls and make a preliminary determination for purposes of disposition. All possible use of referrals is made during the night.

Our minimum staff consists of four people: a doctor, a nurse, an administrator, and a volunteer who serves as administrative assistant, chauffeur to hospitals, and as a medical aide in emergencies and as a messenger to pharmacies, doctors' offices, etc. The small number of nighttime patients makes it impractical to ask a physician to remain at the clinic overnight. Instead, one or more physicians are on call for any emergency, and a registered nurse is on duty at the clinic.

COST

All services rendered by the clinic are done free of charge. Donations are accepted from those who wish to contribute, but there is absolutely no pressure put on patients to contribute.

The patient load at this time is approximately 750 per week. Based on this figure, the medical facility will be costing around $1500 per month minimally. In relation to this figure it can be concluded that the cost per month is easily justified in terms of the benefit to be derived by the community at large.

TOWARD A RATIONAL VIEW OF HALLUCINOGENIC DRUGS[1]

William H. McGlothlin, Ph.D.
RAND Corporation and
University of Southern California

A highly predictable response to social problems in the United States is legal repression, and this is doubly so when the threat involved nonmedical use of unfamiliar drugs. The rapidly expanding use of LSD is currently triggering this response in various state legislatures throughout the country. Whereas the Federal lawmakers are exercising considerable restraint, their counterparts at the state level are rushing through punitive laws on the basis of instinct rather than reason.

I have some first-hand familiarity with the recent enactment of California's "LSD bill" and I believe it illustrates some of the flaws in the instinctual approach to drug legislation. In February, Senator Donald Grunsky introduced a bill to amend the existing dangerous-drug law to include LSD and Dimethyltryptamine (DMT), thereby prohibiting their manufacture, sale, importation, or possession. The bill passed the Senate, 33-0, with virtually no debate and went to the Assembly Criminal Procedures Committee. In presenting his bill to the Committee, Senator Grunsky stated that its purpose was (1) to halt the dangerous illicit use of LSD, and (2) to prevent physicians from prescribing LSD to patients, who would take it without supervision and then (holding up a newspaper account to emphasize his point) go out and murder people like the case in New York. A committee member pointed out that LSD had never been available by prescription, and that prohibition of prescriptions was only for clarity. (The bill was in the form of an amendment to the dangerous drug law which permitted use of barbiturates and amphetamines under prescription.) Senator Grunsky conceded that he must have misunderstood the one-half-page bill and rested his case on the issue of illicit use.

Committee testimony in favor of the bill was generally restrained, although lurid color photographs of a psychotic reaction to LSD were informally circulated by the Attorney General's Office. The principal witness appearing on behalf of the bill testified as to the increasing incidence of LSD-induced psychotic reactions resulting from medically unsupervised use. A representative of the Attorney General's Office testified that the law was needed to prevent antisocial acts by people under the influence of the drug. The Committee repeatedly questioned him regarding the principal difference between the existing Federal and proposed California laws, viz., why the former specifically exempted possession for personal use. He answered that the Federal law-enforcement agencies preferred that the states prosecute at the user level, whereas, in fact, the hearings on the Federal bill make it very clear that the intention of the law is to control manufacture and sale and *not* to impose criminal sanctions against the user.

---

[1] Paper delivered at National Association of Student Personnel Administrators Drug Education Conference, Washington, D.C., November 7-8, 1966. The NASPA Drug Education Project is supported by Contract No. FDA 67-3, with the Food and Drug Administration, Dept. of Health, Education, and Welfare.

The testimony in opposition to the bill was presented by two physicians, a psychologist, and a Jesuit priest. They agreed that controls on LSD manufacture and distribution were needed, but argued that outlawing use and possession would result in the prosecution of young persons whose intentions were not antisocial; that its use was often nothing more than youthful adventure; and that some of the most creative students were among those experimenting with the drug. They further argued that the fear of arrest would discourage users from seeking psychiatric aid should they need it.

The bill failed to receive the required number of votes to pass the Assembly floor, whereupon the Committee immediately came under attack. The action was labeled "irresponsible" by some state senators; Attorney General Lynch stated that LSD and other hallucinogenic drugs "present the most crucial drug problem which the U.S. has faced"; Governor Brown, Ronald Reagan, and various other political candidates announced that they favored passage of the bill, and a Los Angeles *Times* editorial expressed amazement that the Committee was unaware of the LSD menace. The Committee Chairman, Pearce Young, defended the action by pointing out that Federal law already prohibited manufacture and sale, and the further state laws should await the findings of an interim study group which has been established.

In the following week, the Committee defeated a move to reconsider the bill, and the attacks from law-enforcement agencies and the press mounted to new heights. The Los Angeles County District Attorney, Evelle Younger, was quoted on daily radio and TV newscasts concerning the need for LSD controls, and the Los Angeles *Times* ridiculed the Committee for considering such things as "motivation" for use of the drug. At the beginning of the third week, another move was made for reconsideration, and this time the beleagured Committee removed the possession clause from the bill and sent it to the Assembly floor. Their action was attached as a "watering-down" of the bill, and District Attorney Younger initiated a campaign to have the possession feature restored. This was promptly accomplished by a vote of 44-24, and the final bill passed the Assembly by 63-5.

The Los Angeles *Times* editorialized that the Legislature had acted properly, stating that "LSD not only can cause serious harm to the user but can also lead to very serious criminal acts," and naively concluded that the "action will keep it [LSD] in the laboratory and the hospital where it belongs." Attorney General Lynch capitalized on the victory in his political campaign: spot radio announcements pictured him as the man who protected the state from LSD and also fought the meance in

Washington. As a postlude, the governors of California and Nevada vied for the honor of being the first to formalize an anti-LSD bill; the former claiming to have signed a few hours earlier, while Nevada's Sawyer claimed primacy on the grounds that California's law was not to be effective until 90 days after the Legislature adjourned.

California's legislation was based on public instinct, which, in turn, is largely influenced by the popular press. It is reminiscent of Congress's similar approach to the marihuana threat some thirty years ago. At that time, the danger was adjudged so horrendous that the only person who suggested that the facts should be rationally studied, Dr. W. C. Woodward, was thoroughly ridiculed and ignored. Nevertheless, when the facts were eventually investigated, they failed to support most of the unfounded fears that had instigated the legislation.

The same type of "act now, think later" approach to LSD legislation is occurring in several other states. For instance, New York Assembly Speaker A.J. Travia announced that the problem was so urgent he would defer public hearings on the law until after it was passed. The chairman of New Jersey's narcotic drug study commission, C.W. Sandiman, would go even further by filing suit in Federal court to prohibit further articles on the subject of the Life Magazine type. Sandiman regards LSD as "the greatest threat facing the country today . . . more dangerous than the Vietnam war."

How does one go about a rational appraisal of the nonmedical use of hallucinogens? First of all, it is helpful if we temporarily shelve the attitudinal stereotypes attached to nonmedical drug use; otherwise we are immediately involved in logical inconsistencies with regard to those culturally approved drugs, alcohol and tobacco. The social implications are then determined by (1) the effects of hallucinogenic drugs, and (2) the number of persons who will use them in various degrees. The latter point is related to the type of controls that are established, but I shall defer this aspect until later.

Before going further, I shall define the term "hallucinogen" to include LSD, DMT, peyote, mescaline, psylocybin, and a host of lesser-known plants with similar psychic properties. Marihuana is a mild hallucinogen, but lacks the potent consciousness-altering qualities to warrant its inclusion in this group.

The unique feature of the strong hallucinogens is that their users, both historically and currently, attribute mental effects to the drugs that persist long after the more active phase. This is not to say that these long-lasting effects are specific to the drug; rather, given the requisite motivation and expectations, these agents purportedly aid in the rapid modification of attitudes, beliefs and values. It is this feature that led to their adoption by numerous primitive religions and cults. It is possible to use strong hallucinogens simply for their immediate effects, but they are not particularly suitable for regular use in this manner. The rapid buildup of tolerance makes it impossible to maintain the psychic effects continuously without resorting to very high doses; with normal doses, the maximum frequency of use is limited to about twice a week. In addition, since the psychic effects are quite variable, they are rather unreliable as mechanisms of escape. Finally, the strong hallucinogens have never been popular for this purpose among American Indians or other primitive groups. My argument is that the majority of those who continue to use hallucinogens will attribute their motivation to lasting as well as immediate effects.

Keeping this feature of the drugs in mind, we can make some rational predictions about who will use hallucinogens -- that is, who will be attracted by their capacity for influencing attitudes, beliefs, and values. By far the most important variable is age. The hallucinogens are effective modifiers of personality only if a person is seeking such a change, or is at least open to it. Young people passing through what Erikson calls the period of "psychosocial moratorium" are most readily influenced. The less strongly a person is already committed to a set of beliefs, values, and goals, the more likely he is to accept as valid those he finds via the drug experience.

By the same reasoning, adults who are drawn to hallucinogenic drugs are likely to be those who, for one reason or another, find themselves alienated from the mainstream of the culture. They spurn many of the commonplace gratifications society offers, they are often strongly interested in extra-sensory perception and other pararational areas and generally turn inward in search of a more meaningful existence. Highly structured, practical, conforming, outward-oriented people are very unlikely to be attracted to hallucinogenic drugs. Experimental evidence has shown that such people tend to be unwilling to try the drugs, respond very minimally if they do participate, and do not report any lasting effects from the experience. Many LSD enthusiasts are unaware of these limitations. They correctly observe that their most vocal critics have never taken LSD, but rather naively believe that everyone -- conformists and all -- would concur as to the benefits if they would only try it.

Given that we can say something about who will be attracted to hallucinogenic drugs, what are the effects of repeated use, especially the social implications? While there is considerable individual variation, the consistent personal pattern is a lessening of concern over status, competition, material possessions, and other pursuits of the achievement oriented society. The LSD-user often describes himself as more soft, loving, and tolerant with less aggression, egocentrism, and anxiety. He believes LSD has made him more accepting of himself and others; that he is less prone to one-sided judgments in terms of good and bad, right and wrong; and is less prone to be assertive or make a strong commitment to cultural ideologies for which he himself sees no valid reason.

The amount of change and its behavioral manifestation are again a function of age, personality, and commitment to a previous set of beliefs and values. A man in his forties, with a stake in the established order, will generally not change his life pattern abruptly. He is likely to use the drug seldom and cautiously. He may find he benefits from self-insights and from lower anxiety resulting from the reduction of an unrealistically severe superego, i.e., a tendency to excessive self-criticism. He may also enjoy a new-found interest in music, art, and nature -- a sort of aesthetic "Head Start" for artistically deprived adults. He will likely have high praise for the potential benefits of hallucinogens -- but only when used in moderation and in a manner that is integrated with the remainder of his life. Characteristic of this type of user are people with a history of religious and other introspective interests, "friends of psychotherapy", and persons seeking to enhance their creativity in the arts.

At the other extreme is the totally uncommitted person in his teens or early twenties. He dreads the approaching monotony of a job and society's demand that he settle down and assume responsibilities. LSD may well fortify an uneasy suspicion he already entertains: that adult commitment is a meaningless, materialistic rat-race. But what was only a suspicion now takes on cosmic certainty. Unfortunately, this sort of LSD-induced "wisdom" is not accompanied by solutions for some of the basic demands of reality. He belongs to what Kenneth Keniston, in his book, The Uncommitted, calls the "cult of the present", totally absorbed with intensifying today's experience. He avoids thinking about the future, including basic economic realities. If pressed for his reasoning in this regard, he will provide rather child-like rationalizations concerning the futility of planning in an atomic age, or perhaps a belief that automation will somehow solve the world's economic problems. He may comfort himself with a vague, intuitive feeling that the world is about to metamorphose suddenly into a noncompetitive, peaceful and benevolent utopia -- all by itself, with no need for active intervention by himself or others. In short, he refuses responsibility, both for his own self-direction, and as a contributor to the existing social order.

In examining the effects of nonmedical use of hallucinogens, we should, of course, take up the issue of psychotic reactions. This has generally been considered the principal source of harm, both in medical journals and the popular press. In my opinion, the capacity of hallucinogenic drugs for shaping personality and values (both adjustive and disruptive) is likely to have considerably more social impact than the more visible and bizarre psychotic reactions. I do not wish to minimize the danger of LSD-induced psychotic reactions, or self-destructive actions, but rather, we suggest that this is not the major social issue. The most common public image of LSD is that of a thrill drug for which one risks the possibility of serious harm from a psychotic reaction in exchange for an exciting experience. In reality, the lasting effects appear to be more continuous -- the large majority of psychoses are in the form of anxiety panics which respond readily to treatment with tranquilizers; while, on the other hand, some frequent users who have never experienced a psychotic reaction will demonstrate very loose and unrealistic thinking. The latter reactions occur most frequently among adolescents and young adults who are overwhelmed by the drug experience and regress to primitive thinking with poor ability to cope with reality. It is also interesting to note that the transient psychotic reactions are frequently described as especially potent modifiers of personality and values.

There is no doubt that LSD can aggravate existing unstable tendencies, and occasionally precipitate a long-lasting psychosis or suicide; the stronger preparations of cannabis (marihuana) used in Eastern countries have long been recognized to have this capability. On the other hand, it appears unlikely that LSD can produce more than a temporary anxiety panic in a previously stable and well-integrated person. The probability of psychotic reactions can be markedly reduced through preparation and protective care by a knowledgeable person during the intoxication. The experience of the American Indians with peyote indicates that psychosis is very infrequent in a protected and structured setting.

Question of Controls

The proponents of hallucinogenic drug-use contend that it falls within the individual's constitutional rights; that a person should be permitted to use chemical as well as other means of consciousness alteration in the pursuit of religious experience, self-understanding, and perhaps even pleasure. Specifically, they contend that prohibition violates the First Amendment's guarantee of freedom of religion, and more generally, that it is an unwarranted invasion of privacy -- the basic right to be let alone, as set forth by the Fourteenth Amendment. They argue further that any harmful effects are confined to the individual, society not suffering directly, and that legal attempts to protect an individual from himself are basically unworkable. The issue is one of prohibition and not regulation; the constitutional right of the government to regulate drugs in the public interest is not questioned.

Several Supreme Court rulings made before and after the Volstead Act pertain to the issue of individual freedom versus the protection of society from the harms of alcohol use.

> It is argued that, as the liquors are used as a beverage, and the injury following them, if taken in excess, is voluntarily inflicted and is confined to the party offending, their sale should be without restrictions, the contention being that what a man shall drink, equally with what he shall eat, is not properly a matter for legislation.
>
> There is in this position an assumption of a fact which does not exist, that when the liquors are taken in excess, the injuries are confined to the party offending. The injury, it is true, first falls upon him . . . but, as it leads to neglect of business and waste of property and general demoralization, it affects those who are immediately connected with and dependent upon him.

In another decision the Supreme Court stated:

> The ultimate legislative object of prohibition is to prevent the drinking of intoxicating liquors by anyone because of the demoralizing effect of drunkenness upon society. The state has the power to subject those members of society who might indulge in the use of such liquor without injury to themselves to a deprivation of access to liquor in order to remove temptation from those whom its use would demoralize.

Boy Bates, in an article entitled "Psychedelics and the Law," has summarized the opposing viewpoint:

> Freedoms, it is understood, have a pathology of their own. They can be revelled in unwisely; that's a private affair. They can be abused to the detriment of public safety; then the law must be on hand to curb them. But they ought not to be legislated away as if adults were children of an over-anxious mother.

Of course, the above Supreme Court interpretations were made before the prohibition experiment failed, and it does not follow that the prohibition of hallucinogens would be ruled constitutional on the same grounds. If, as I have argued, the principal social impact of hallucinogens is on the personalities and values of users, the court might be asked to rule whether the state has a right to protect itself against a chemical assault on its value system, a threat that might, if sufficiently widespread, endanger the social order.

The U.S. Supreme Court has never ruled on the constitutionality of state laws prohibiting the American Indians' religious use of peyote, but state Supreme Courts have overturned virtually all of these laws. In the most recent cases of Arizona and California, the state contended that where a religious practice conflicts with public health, e.g., the Mormons' practice of polygamy, the religious practice must yield. The courts, however, ruled the state must show that the practice is "frustrating a compelling interest of the state" before it can justifiably abridge the guarantee of religious freedom; and in the court's opinion the state had not so shown in the case of the Indians' ritual use of peyote. The decisions were based entirely on the issue of religious freedom; as for other uses of peyote, the California court stated, "We do not doubt that even though technically peyote is an 'hallucinogen' rather than a narcotic, the state, pursuant to the police power, may prescribe its use." It would perhaps be premature to conclude that the California courts would sanction the religious use of LSD and other hallucinogens by non-Indians. The Indians, at least, have the precedent of a long cultural history on their side. Peyotism is the commonest religion among the American Indians; the religious use of peyote dates back to at least 1560, with an established church for the past 50 years; they use peyote within a highly prescribed religious ritual; and finally, they are a primitive culture with very little impact on society as a whole. Nevertheless, the California decision did not rule out the use of peyote by non-Indians, stating the "trial courts will have to determine in each instance, with whatever evidence is at hand, whether or not the assertion of a belief which is protected by the First Amendment is in fact a spurious claim."

Constitutionality is not the only question involved in a rational approach to drug control, as the prohibition era so vividly demonstrated. The Harrison Act sharply reduced narcotic addiction, but created serious new social problems. Among students and certain other groups, the marihuana laws are increasingly being regarded with the kind of disrespect that followed the prohibition of alcohol. Prohibiting the stronger hallucinogens may create even more disrespect, especially among users who associate their use with various socially-sanctioned benefits.

In rationally examining the consequences of legal repression as a method of drug control, we should consider (1) the consequences of unrestricted use or of nonpunitive controls; (2) whether the laws are enforceable; (3) whether the prescribed punishment is commensurate with the "offense", which is to say, whether it is consistent with that imposed for other offenses; and (4) the value of deterrence versus the law's unintended side effects.

On the first point, we already know a great deal about the social effects of the unrestricted use of alcohol. Alcoholism is generally attributed to previously existing psychopathology or social alienation. The basic question is whether, if alcohol were unavailable, problem drinkers would simply resort to equally deleterious outlets. A corollary to this question is whether legalizing such a drug as marihuana would compound social problems by increasing the number of persons using drugs to excess. If those who abuse marihuana were drawn from the population of alcoholics, there is a sound argument for expecting an improvement in the social situation, at least, in terms of the resulting physiological damage. It is true that few persons use both drugs to excess. On the other hand, it has been argued that alcohol and marihuana satisfy different needs and the resulting abuse would be additive. The strong hallucinogens are not suitable for producing the continual intoxication that is possible with alcohol and marihuana. While it is too early to adequately assess the capacity for abuse of the strong hallucinogens, there is some reason to believe it would be fairly minimal for adults, but appreciable among the less-restrained younger group. By "abuse" I mean, primarily, repeated use resulting in undesirable personality effects.

Regarding the second point, the enforcement of LSD prohibitions will certainly produce some formidable problems, considering that one ounce of the colorless, tasteless, odorless liquid is sufficient for 300,000 doses. It is much easier to smuggle LSD than Heroin or marihuana; and prosecution at the seller level will have more influence on price than on availability. The possibilities for concealment, such as absorption on the page of a book or a piece of cloth, may make it impossible to enforce the laws against possession.

On the third point, the gross inconsistencies in the laws controlling drugs are undeniable. For instance, peyote, mescaline, LSD, and psilocybin are virtually indistinguishable in their psychic effects, but the patchwork California laws permit peyote for Indians (and perhaps for serious non-Indians), define mescaline as a narcotic and impose the same severe penalties as for heroin use, treat LSD as a dangerous drug with a misdemeanor charge for possession, and do not cover psilocybin at all. At the same time, marihuana -- so mild a hallucinogen that it cannot be logically included in the above group -- is treated as a narcotic, with some violations requiring mandatory prison sentences of 5 to 10 years. Add to this confusion the fact that the consumption of alcohol is promoted with the full power of American advertising, and the illogic becomes rather appalling.

On the final point, we ask to what extent legal repression will deter the use of hallucinogens, and how this is balanced against the law's unwanted side-effects. Some have argued that outlawing drugs that are considered relatively harmless merely enhances their attractiveness among rebellious young groups. While this may be true, there can be little doubt that, overall, laws that are enforced do reduce drug usage. Availability is a precondition for use, and easy availability without legal complications will result in more widespread use than will occur under illicit conditions. Even the widely flouted prohibition laws are acknowledged to have reduced the total alcohol consumption (although perhaps not the total abuse), and the strikingly higher rate of narcotic addiction among members of the medical profession over that for the general population attests to the effectiveness of the narcotic laws in reducing overall usage.

It is important to ask not only how effective a law is as a deterrent, but also who the individuals are who do not conform. Persons breaking the law on opiates come very largely from socially and economically deprived groups who demonstrate a high rate of deviancy in non-drug areas. Until recent years, the use of marihuana was also largely confined to these groups (except for jazz musicians). In the last few years, there has been a rapid spread of marihuana use to college students and various other middle and upper socioeconomic groups who have not heretofore had a general pattern of deviance. LSD was introduced into the society through scientific and medical sources, and up to now has apparently not spread to the lower social groups. This, combined with the fact that many persons using LSD are seriously motivated by hopes of solving personal problems or achieving some other lasting benefit, means that a substantial number of the persons violating LSD laws will not be deviant in other respects.

At a recent conference on LSD, Joseph Lohman, Dean of the University of California (Berkeley) School of Criminology, and former Sheriff of Cook County, Ill., pointed out that this situation leads to several undesirable side-effects. First, some students and other persons who are not basically antisocial will suffer arrest records, social stigma, and other personal harm. Second, it breeds a subculture with hostility to the law, which may generalize to secondary patterns of deviance. Third, it creates and supports organized crime as a source of supply. Fourth, it causes poor quality-control of the drug, which may result in overdoses or poisonous adulterations. Lastly, persons needing medical attention as a result of drug-induced reactions may not apply for it because they fear arrest.

Selective enforcement is another problem with drug laws that do not have the full support of the population, courts, and police. The marihuana laws are frequently not enforced because the harsh penalties are in poor social perspective. Police frequently overlook student use of the drug, and the courts decline to prosecute. At worst, this situation can supply law-enforcement agencies with a lever to attach other types of behavior that are unpopular but not illegal; at best, it results in gross inequality of treatment between certain lower classes under close surveillance of the law and students and upper socioeconomic groups who may use the drug with virtual impunity.

Future of Hallucinogenic Drugs

The civilized world was first introduced to the strong hallucinogens around 1900. After taking a small single dose of peyote in 1896, a noted physician, Weir Mitchell, wrote:

> I predict a perilous reign of the mescal (peyote) habit when this agent becomes attainable. The temptation to call again the enchanting magic of the experience will, I am sure, be too much for some men to resist after they have once set foot in this land of fairy colours, where there seems to be so much to charm and so little to excite horror and disgust.

A year later, Havelock Ellis described the effects of three peyote buttons as an "artificial paradise" and noted: "I fully agree with Dr. Weir Mitchell that there is every likelihood that mescal will become popular." Ellis was attacked in the British Medical Journal for painting too attractive a picture of peyote: "We must venture to point out that such eulogy of any drug is a danger to the public. . . . Surely this is putting temptation before that section of the public which is always in search of a new sensation." The Literary Digest joined in with lurid warnings of the "gigantic problem of spread to whites of this 'dry whiskey.'"

Why were these predictions some seventy years in fulfillment? The bitter taste and nausea-producing effects of peyote are deterrants, but this problem was resolved with the synthesis of mescaline in 1919. One hypothesis is that hallucinogens have recently become popular because America's achievement-oriented belief system has weakened. Several authors have concluded that cultural differences strongly influence the choice between alcohol and cannabis (marihuana) as an intoxicant. Cannabis is more popular in cultures that tolerate social inaction, alcohol in cultures that place a high value on action. Horton has found that, in the large majority of primitive cultures, alcohol releases aggressive actions; cannabis typically results in quiet euphoria, and prolonged regular use leads to a more passive personality.

While there are no cross-cultural comparisons available among civilized groups in the case of the strong hallucinogens, there is good reason to believe that their use will be even more influenced by cultural values than is cannabis. The latter is used for religious meditation by some groups in India and elsewhere, but most users are motivated by the immediate euphoric effects. Cannabis is a reliable euphoriant since its effect is easily controlled, and consumption by smoking allows the experienced user to gauge accurately the amount absorbed. Furthermore, there is little buildup of tolerance, so the user may repeat it at will. With the strong hallucinogens, much less control and direction is possible and euphoria is only a part of the experience. As mentioned earlier, most users will state that they are motivated to obtain personal understanding, philosophical insights, and various other phenomena considered to have lasting value. Alcohol and, to some extent, cannabis, provide a temporary escape from reality. On the other hand, the user of the strong hallucinogens frequently regards the drug-induced state more real in many ways than his normal reality, and values any carry-over that may result -- thus the ideal for the LSD enthusiast is to remain "turned on" when not under effect of the drug. The hallmark of the LSD experience is freedom from absolutes and dualities; good and evil, right and wrong merge into a single oneness. It is this viewpoint that impels the user to see all normal endeavors as "games", and the loss of this perspective as a "hangup". A precondition for the acceptance of this position is the lack of a firm commitment to another belief system; hence the argument that the recent popularity of hallucinogens is due to alienation from the conventional Western value system.

Keniston attributes the alienation of American youth to such sources as loss of historical relatedness, chronic social change, and the exacting demands of a technological age. He differentiates between those who are alienated through their inability to meet society's demands and those who choose not to do so. Persons currently attracted to LSD come primarily from the latter group.

The future use of hallucinogens is contingent on the degree of legal repression and, if the above-described thesis is correct, a continuing trend away from the achieving society. For instance, an all-out war effort would probably reverse the present trend. It appears unlikely that more than a small minority of today's adults will ever become regular users of hallucinogens simply because the effects do not accord with their value system. The amount of potential use among today's youth is much more uncertain. The use of hallucinogens among this group is accompanied by a Utopian-type movement with a philosophy which is similar, but not synonymous, to that of the New Left. It contains components of hedonism, humanism and existentialism, but its most characteristic feature is passive detachment. It seems unlikely that there will ever be an organized psychedelic capable of exercising political pressure. The personalities attracted, as well as the effects of hallucinogens, are directly opposite to those required for an activist approach and their use has reportedly depleted the ranks of certain liberal movements. A case in point is the recent attempt of a California group to legalize marihuana via the initiative route. They received wide publicity -- but no one ever got around to getting the petition forms printed, let alone the collection of one-half million signatures.

In spite of the absence of activist groups, the legal position is showing some softening. Federal legislation is toward control of drug manufacture and distribution, with less repression at the user level. Barring a reversal of this trend, the severity of the marihuana laws against possession should be sharply reduced within the next few years. There is general recognition that most of the social harms attributed to marihuana have been grossly exaggerated. The only accusation still given serious consideration is that marihuana serves as a stepping stone to heroin addiction. Even this argument for a repressive law is rather weak since, as Alfred Lindesmith has pointed out, it punishes a person not for what he has done, but rather for what someone things he might do. There is certainly no indication of progression to heroin among college marihuana users. It is difficult to see how the gross incongruity in legal treatment between LSD and marihuana can continue.

The logical inconsistency running through the drug laws of this country has always been that they are, in fact, attempts to legislate morality, but are justified on the grounds that they prevent antisocial acts. It is understandable that an achieving society should shudder at the spectre of withdrawal into the fantasies of the opium den; but since laws directly prohibiting this type of choice do not fit the democratic model, we associate drug use with various crimes and justify prohibition on these grounds. Criminal sanctions against the use of strong hallucinogens are especially difficult to justify in this manner since users frequently claim to have reaped drug-induced benefits that are in the best Judeo-Christian tradition. This very dilemma continually frustrated the missionaries who led the attack against peyotism among the American Indians during the early part of the century. As the peyote cult became more Christianized, the Bible was placed on the altar along with a large peyote button called the "father peyote". Particularly irksome to the missionaries was the practice of quoting various Bible passages on the eating of herbs, which the Indians interpreted as peyote. Apparently, the reports of LSD-induced consciousness expansion are equally irksome to government officials: FDA Chief Goddard recently dismissed this claim as "sheer bunk".

In spite of Goddard's assessment, most attempts at comparing natural and hallucinogen-induced mystical experiences have concluded they are indistinguishable in content. It does not follow, of course, that they have the same impact on personality, since preparation and commitment are often considered to be an essential part of such approaches. Nevertheless, serious attempts to use strong hallucinogens in a religious setting probably stand the best chance of social acceptance in the near future. Several groups are already proceeding along these lines.

Another suggestion that has been advanced is that controlled use of hallucinogens be permitted in special centers with or without a religious orientation. This would provide several advantages over the present situation: the provision of medical supervision, quality control of the drug, a pleasant and supportive environment, and some structure as to the frequency of use.

The most serious social conflict between users and nonusers of hallucinogens is likely to be one of economics. I have already mentioned that many of the young persons who form the major part of the LSD or psychedelic movement have a very unrealistic lack of concern about the economic facts of life. They choose not to participate in a technological society, but are vague on how they plan to make a living. They are contemptuous of the "square" world, but at the same time depend on its high standard of living. An affluent society can support a sizeable number of such "disaffiliates", but whether it will choose to do so is another question. The conforming majority are more or less willing to support people who are genuinely unfitted for meeting their own needs; they are much less willing to support the able-bodied who politely decline to participate; and they may hotly refuse to tolerate a group that rejects work, takes drugs, and ridicules its benefactors.

The alienation in today's youth does not stem from the use of hallucinogens, but the drugs do tend to reinforce their overall detachment from society. The major question is whether this alienation will persist into adulthood. Leslie Fiedler concludes that it is a permanent condition -- that a new breed of "mutants" has been brought about by advanced technology, aided by LSD. If we conducted a follow-up study of the beatniks of the Fifties, we could probably foretell the destinies of today's alienated LSD-users. It is easy to conceive of new generations of youth passing through a disaffiliate stage; it is more difficult to visualize a similar group in their forties. The overreactions of the psychedelic movement are characteristic of youthful rebellion. In their eagerness to escape the materialistic brainwashing imposed by the culture, they have also tended to become oblivious to the personal satisfaction resulting from accomplishment. The LSD movement also has a strong anti-intellectual component. There is a failure to recognize that one may suspend the objective rational functions of the mind when they are inappropriate without completely depriving oneself of this essential means of coping with reality. Age can normally be expected to reveal the fallacies of a free-loading existence, as well as the satisfaction of achievement and the usefulness of a rational approach. One reason for the missionary zeal among current LSD-users is that perhaps 90 per cent of the persons who have taken the drug during the 23 years since its discovery have done so in the past year. Overenthusiasm is characteristic of the initiate; it is much less evident among those exposed five to ten years ago.

Another viewpoint is that chemistry is on the side of the drug-taker -- that the current crop of hallucinogens is only the first generation of a long series of consciousness-altering drugs with more specific effects and less undesirable consequences. The Director of NIMH, Dr. Stanley Yolles, recently predicted a hundred-fold increase in drugs that affect the mind in the next ten years. According to this view, the rational individual would choose from a large selection of consciousness-altering drugs according to the particular effect he desires. Alcohol might remain the most widely used, but by no means the only, socially accepted drug.

In spite of the current LSD panic and the resulting hasty legislation in some states, the rigidly defined good and bad roles of drugs are probably nearing an end, and legal repression at the user level seems likely to be markedly reduced in the not too distant future. On the other hand, society will continue to express its disapproval of cultist withdrawal centered around the use of drugs, and such groups are no more likely to prove viable than the numerous other utopian movements throughout history. Individuals who seek pleasure or personal growth through consciousness altering drugs, and pursue these goals within the social order, will likely enjoy increasing social acceptance.

THE DRUG ABUSE CONTROL AMENDMENTS OF 1965
FACT SHEET - 1

From the Bureau of Drug Abuse Control
Food and Drug Administration
U.S. Department of Health, Education, and Welfare
Washington, D.C.

The Drug Abuse Control Amendments to the Federal Food, Drug, and Cosmetic Act, passed in 1965 and effective as of February 1, 1966, are the result of increasing national concern over the widespread abuse of three groups of dangerous drugs -- depressants, stimulants, and hallucinogens.

The Bureau of Drug Abuse Control has been organized as part of the Food and Drug Administration because of the extensive experience and activities of the Administration in dealing with safety standards and other requirements designed to protect the public against drugs which are potentially dangerous, have serious side effects, have not been sufficiently tested, or are impure.

Under the Drug Abuse Control Amendments, the Bureau has set up nine field offices -- in Atlanta, Baltimore, Boston, Chicago, Dallas, Denver, Kansas City, Los Angeles, and New York.

To carry out the provisions of the law, some 300 specially trained agents are empowered to seize illegal supplies of the controlled drugs, serve warrants, and arrest persons engaged in the illegal manufacture, trade, or handling of dangerous drugs. BDAC agents will have the right to carry firearms while engaged in their duties.

The law combines two methods to curb drug abuse: all legal handlers of drugs designated as dangerous must keep records of their supplies and sales, while the purveyors of illegal drugs are punished under the statute's criminal section.

Thus, all registered manufacturers, processors and their suppliers, wholesale druggists, pharmacies, hospitals, clinics, public health agencies, and research laboratories must, as of February 1, 1966, or any date thereafter that a drug comes under control, take an inventory, keep accurate records of receipts and sales of these drugs, and make their records available to FDA agents. For the controlled drugs, no prescription older than 6 months can be filled, nor can refills be made more than five times.

Anyone who produces or sells dangerous drugs illegally may receive a maximum penalty of 1 year in prison, or a $1,000 fine, or both; a second offense increases the maximum prison term to 3 years, or a fine to $10,000. Because of the serious consequences of drug abuse among young people, special penalties are provided for those over 18 years old who sell or give any of the controlled drugs to persons under the age of 21. The first offense carries a maximum penalty of 2 years in prison, or a fine of not more than $5,000, or both; the second offense calls for a maximum of 6 years in prison, or a fine of not more than $15,000 or both.

The law enables the Bureau of Drug Abuse Control to detect and eliminate the illegal sources of dangerous drugs, but does not provide criminal sanctions against the user. It is believed, rather, that through proper treatment, both physical and psychological, the drug abuser can be rehabilitated and returned to his place in society.

THE ILLEGAL TRAFFIC IN DANGEROUS DRUGS
FACT SHEET - 2

From the Bureau of Drug Abuse Control
Food and Drug Administration
U.S. Department of Health, Education, and Welfare
Washington, D.C.

Before any new drug can be offered commercially, it is reviewed by the Food and Drug Administration for safety and effectiveness. Some drugs, such as those used for the common cold, can be sold over the counter; other, more potent substances, including amphetamines and barbiturates, are required by law to be sold only on a physician's prescription.

The drug abuser has found various ways to obtain dangerous drugs illegally. He may alter the date and dosage of an existing prescription, or forge a new one on a prescription pad stolen from a physician. He may purchase his supply from truck stops, newstands, bars, or retail peddlers; he may even make an arrangement with an unscrupulous pharmacist.

Dangerous drugs get into the illegal retail trade through larceny from reputable manufacturers, wholesalers, or pharmacies. Clandestine manufacturers operating illegally in garages, basements, and warehouses produce substantial quantities. Counterfeiters and some registered manufacturers under the cloak of legality make large quantities of dangerous drugs illegally and dispose of them through the illicit trade. The illegal "bulk peddler" is an important link in the traffic in dangerous drugs; he deals in hundreds of thousands of capsules and tablets.

Several billion capsules and tablets of dangerous drugs are produced annually in the United States. Substantial quantities find their way into the hands of drug abusers through illegal channels.

SUGGESTED STARTING BIBLIOGRAPHY IN NARCOTIC ADDICTION
"A"

NARCOTICS
Norman Taylor. Delta, 1963 (paperback).
A readable book which makes up in clearness for what it lacks in depth. Has an extensive bibliography at the end. This is a revised edition of the author's "Flight from Reality."

REPORT OF WHO EXPERT COMMITTEE ON ADDICTION-PRODUCING DRUGS
WHO Geneva (or U.S. offices).
A series of reports of which the 1964 report was the thirteenth. Point of view is technical and conservative.

COMPREHENSIVE PSYCHIATRY
Vol. 4, No. 3, June 1963.
A collection of interesting papers on drug addiction including two from Britain. Each paper has a fairly extensive bibliography.

DRUG ADDICTION
E. W. Adams. Oxford Medical Publications, London, 1937.
Somewhat out of date in many respects but gives excellent descriptions of the phenomenology. A complete bibliography of the literature up to that time.

OPIATE ADDICTION
Abraham Wikler. Charles Thomas Springfield, 1953.
A brief but technical introduction. Good bibliography.

OPIUM
Jean Cocteau. Grove Press, E 98 (paperback), 1957.
A book which shows that a sensitive man can say the same things about opium as one is accustomed to hear about heroin. Autobiographical.

CONFESSIONS OF AN ENGLISH OPIUM EATER
Thomas DeQuincey. Three Sirens Press, New York, 1932.
An early autobiographical work from the early 1800's. A literary classic.

PROBLEMS OF ADDICTION AND HABITUATION
Hoch and Zubin. Grune and Stratton, New York, 1958.
A collection of papers given at the American Psychopathological Association meeting of 1957, some on alcohol and some on narcotics. Includes a paper from the Federal Bureau of Narcotics on prevalence, etc. Paper by Regan contains an extensive and useful bibliography especially on the Lexington work.

PRESIDENT'S ADVISORY COMMISSION ON NARCOTIC AND DRUG ABUSE, THE
Supt. of Documents. U.S. Govt. Printing Office, Washington, D.C., Final report November, 1963.
Page 95 has a good bibliography on control methods. The book also contains an account of some of the treatment facilities and a list of some of the names of persons active in this field.

The Proceedings of the White House Conference on Narcotic and Drug Abuse of Sept. 27 and 28, 1962 contains more detail and has a better list of names. Also available from the U.S. Govt. Printing Office.

NARCOTICS ADDICTION
American Medical Association, 1963.
The official position of organized medicine is presented.

NARCOTIC ADDICT AS A PATIENT, THE
Marie Nyswander. Grune and Stratton, New York, 1956.
An excellent account of the clinical aspects. Each chapter has its own bibliography and it covers the range of substances normally encountered in New York.

MURDERERS, THE
H. J. Anslinger. Avon Books (paperback), V 2064.
Light reading on the point of view of the Bureau.

ADDICT, THE
Dan Wakefield. Gold Medal Book (d-1332) (paperback).
Cheap, but an example of the kind of caricature which is sold to the public.

WHO LIVE IN THE SHADOW
Judge John M. Murtaugh and Sara Harris. Belmont Books #25, (paperback), case reports -- Reprint of $4.50 edition.

DRUG ADDICTION: PHYSIOLOGICAL, PSYCHOLOGICAL AND SOCIOLOGICAL ASPECTS
D. P. Ausubel. Random House, p. 17, Copyright, 1958.
Slanted but fairly comprehensive.

TRAFFIC IN OPIUM AND OTHER DANGEROUS DRUGS
Bureau of Narcotics, U.S. Treasury Department, Washington, D.C., Government Printing Office.
Published annually. Official annual statistical reports of Federal Bureau of Narcotics, giving incidence of addiction and analysis of trends.

CONFERENCE ON DRUG ADDICTION AMONG ADOLESCENTS
Committee on Public Health Relations of the New York Academy of Medicine, New York, The Blakiston Company, Inc., 1953.
A verbatim record of a conference on adolescent drug addiction. Present views of psychiatrists, pharmacologists, jurists, legislators, educators, sociologists, and law-enforcement personnel.

OPIUM ADDICTION IN CHICAGO
B. Dai. The Commercial Press, Shanghi, China, 1937.
Psychological and sociological analysis of causes and prognosis of opium addiction. Clinical and statistical data.

INTERNATIONAL NARCOTICS CONTROL
L. E. S. Eisenlohr. Allen & Unwin, Ltd., London, 1934.
A history of international efforts to curb the illicit traffic in opiate drugs.

NARCOTICS 1952
N. L. Goldstein. Second Report by Nathaniel L. Goldstein, Department of Law, Albany, New York, 1953.
An analysis of trends in drug addiction in New York State, of new legislation regarding control of addiction, and a description of the New York City-State treatment facility for adolescent drug addicts (Riverside).

OPIATE ADDICTION
A. R. Lindesmith, Principia Press, Bloomington, Indiana, 1947.
A sociologist's theory of opiate addiction based on interviews with drug addicts.

JAPAN AND THE OPIUM MENACE
F. T. Merrill. Institute of Pacific Relations and the Foreign Policy Association, New York, 1942.
History of the opium problem in the Orient.

SOCIAL AND PSYCHOLOGICAL FACTORS IN OPIATE ADDICTION
A. S. Meyer. Bureau of Applied Social Research, Columbia University, New York, 1952.
A tabular summary and annotation of the drug addiction literature through 1951. Coverage includes incidence and patterns of addiction, characteristics of drug users, concomitants of drug use, etiological factors, relapse, and treatment.

SUGGESTIONS FOR TEACHING THE NATURE AND EFFECTS OF NARCOTICS FOR USE IN GRADES 7-12
New York City Board of Education, Board of Education of City of New York, New York, 1951.

MENACE OF NARCOTIC DRUGS, THE
E. G. Payne. Prentice-Hall, Inc., New York, 1931.
An older reference, chiefly valuable today as a source of historical data regarding production and consumption of opiates, drug addiction practices, and attempts at national and international control.

A STATISTICAL ANALYSIS OF THE CLINICAL RECORDS OF HOSPITALIZED DRUG ADDICTS
M. J. Pescor. Publ. Hlth. Rep., Supplement No. 143, 1938.

DRUG ADDICTION IN RELATION TO PROBLEMS OF ADOLESCENCE
P. Zimmering, et al., Amer. J. Psychiat., 1952, 109, 272-278.

CANNABIS SATIVA IN RELATION TO MENTAL DISEASES AND CRIME IN INDIA
R. N. Chopra & G. S. Chopra. Indian J. Med., Res., January 1942.

MARIHUANA, THE NEW DANGEROUS DRUG
F. T. Merrill, Opium Research Committee, Washington, D.C., 1950.
A popularly written presentation of the history, control, characteristics, and social consequences of marihuana addiction.

MARIHUANA PROBLEM IN THE CITY OF NEW YORK
New York City Mayor's Committee on Marihuana, Jacques Cattell Press, Lancaster, Pa., 1944.
Sourcebook of information on the pharmacology of marihuana, its physical and psychological effects, and its social concomitants and consequences.

MARIHUANA: AMERICA'S NEW DRUG PROBLEM
R. P. Walton. J. B. Lippincott Co., Philadelphia, 1938.
An older summary of the literature on marihuana addiction containing interesting historical data on the practice.

MESCAL: THE DIVINE PLANT AND ITS PSYCHOLOGICAL EFFECTS
Heinrich Kluber, Ph.D. Kegan Paul, Trench, Trubner and Co., London, 1928.
Mostly an account of the hallucinations. Contains a bibliography of the older literature on mescal.

DOORS OF PERCEPTION, THE
Aldous Huxley. Harper and Brothers, 1954.
A book that has had much notoriety supporting the transcendental nature of drug hallucinations.

NARCOTICS AND THE LAW
W. B. Eldridge. The American Bar Association, 1962.
A rather pedestrian summary of the points against the present system of narcotics control.
Extensive bibliography on this subject.

AMPHETAMINE PSYCHOSIS
P. H. Connell. A Maudsley Monograph, Chapman and Hall, London, 1958.
A technical work but an indication of problems in England.

TRIAL OF DR. ADAMS, THE
Sybille Bedford. Grove Press (paperback), NY L, 1958.
An account of a trial of a British doctor who used narcotics excessively in the treatment of his patients.

ADDICT AND THE COMMUNITY, THE
Kenneth W. Chapman, M.D. Reprint Federal Probation Quarterly, March 1957, pp. 41-44.

BARBITURATES AS ADDICTING DRUGS
PHS Publication No. 545.

CHEMICAL AND ENGINEERING NEWS-NEWSMAGAZINE OF THE CHEMICAL WORLD
October 1, 1962. Discusses the chemical roots of mental illness; tranquilizers and antidepressant drugs - how they act to relieve mental ills.

DRUG ADDICTION: THE GENERAL PROBLEM
Kenneth W. Chapman, M.D. Reprint Federal Probation Quarterly, Sept. 1956, 5 pp.

DRUGS FOR THE MIND
Reprint Changing Times, The Kiplinger Magazine, July 1962. 3 pp.

EPIDEMIOLOGIC FACTORS IN DRUG ADDICTION IN ENGLAND AND THE UNITED STATES
Granville W. Larimore, M.D., and Henry Brill, M.D. Reprint Public Health Reports, July 1962. pp. 555-560.

FACT SHEET ABOUT NARCOTIC DRUG ADDICTION
Prepared by Publications and Reports, NIMH 7 pp.

FOLLOW-UP STUDY OF NARCOTIC DRUG ADDICTS FIVE YEARS AFTER HOSPITALIZATION
Henrietta J. Duvall, B.A., Ben Z. Locke, M.S., and Leon Brill, M.S. Reprint Public Health Reports, March 1963. pp. 185-194.

FOLLOW-UP STUDY OF NARCOTIC DRUG ADDICTS AFTER HOSPITALIZATION
G. Halsey Hunt, M.D., and Maurice E. Odoroff, M.A., Reprint Public Health Reports, January 1962. pp. 41-54.

GLUE-SNIFFING
National Clearinghouse for Poison Control Centers Bulletin. Feb.-Mar. 1962 7 pp.

HOSPITAL TREATMENT OF THE NARCOTIC ADDICT
James V. Lowry, M.D. Reprint Federal Probation Quarterly, Dec., 1956. pp. 42-51.

NARCOTIC ADDICTION PROBLEM, THE
Charles Winick, Ph.D. A Publication of the American Social Health Association. 22 pp.

NARCOTIC DRUG ADDICTION: MENTAL HEALTH MONOGRAPH No. 2 (in press).

PREVENTION AND CONTROL OF NARCOTIC ADDICTION
U.S. Treasury Dept., Bureau of Narcotics. 32 pp. GPO. 15¢.

PSYCHOPHARMACOLOGY AND PSYCHIATRY
Robert H. Felix, M.D. Reprint the Journal of the Arkansas Medical Society, November 1961. pp. 223-229.

PUBLIC HEALTH AND SOCIAL PROBLEMS IN THE USE OF TRANQUILIZING DRUGS
Public Health Monograph No. 41. Public Health Service Publication No. 486. 30¢.

TREATMENT OF BARBITURATE ADDICTION
Harris Isbell, M.D. Reprint Postgraduate Medicine, 1951. pp. 256-258.

BIBLIOGRAPHY[1]
"B"

I. Books

*Blum, Richard H. and Associates. Utopiates: The Use and Users of LSD-25. New York: Atherton Press, 1964.
A major study of LSD use in a variety of settings, and of users and nonusers. Also contains chapters on the psychopharmacological, legal and social aspects of LSD. A must!

Cohen, Sidney. The Beyond Within: The LSD Story. New York: Atheneum, 1964.
One of the early psychiatrists to explore the effects of LSD during the past ten years presents reports on "good trips" and "bad trips", discusses "good" uses and "bad" uses.

Goldstein, Richard. 1 in 7: Drugs on Campus. New York: Walker and Co., 1966.

Masters, R.E.L. and Houston, Jean. The Varieties of Psychedelic Experience. New York: Holt, Rinehart and Winston, 1966.
Analysis of data based on first-hand observations of 206 drug sessions and upon interviews with an additional 217 subjects who took the drug in a variety of other settings. Discussion of the effects of drug-taking with respect to: body image, perceptions of other persons, repressed experiences, symbolism, religious and mystical experience.

Mayor's Committee on Marihuana. Lancaster, Penna.: Jacques Cattell Press, 1944.
The marihuana problem in the city of New York: sociological, medical, psychological, and pharmacological studies. A classic which is now out of print but is reproduced almost in its entirety in Solomon, Marihuana Papers.

*Solomon, David (Ed.). The Marihuana Papers. Indianapolis: Bobbs-Merrill Co., Inc., 1966.
An important collection of papers. Although the predominant impact is not "anti-pot", the general excellence and diversity of papers should contribute to a further understanding of the use and abuse of this drug.

II. Paperbacks

Ausubel, D. P. Drug Addiction: Physiological, Psychological and Sociological Aspects. New York: Random House, 1958. #PP1.
Primarily concerned with opiate addiction, but discusses marihuana, barbiturates, cocaine and amphetamines.

---

[1] This bibliography represents only a few of the hundreds of references available. Articles have been selected to provide a basic introduction to and/or extensive bibliographies on various aspects of the problem. (*) items comprise basic references.

Cashman, J. The LSD Story. Grenwich, Conn.: Fawcett Publications, Inc. 1966. (#d-1716)
A journalist's straightforward account of the history of LSD and of the various ways in which it has been used.

*de Ropp, R.S. Drugs and the Mind. New York: Grove Press, Inc., 1957. (Evergreen Black Cat #BC - 7).
A biochemist writes dispassionately of mescaline and marihuana, the role of drugs in the study and treatment of mental illness, addiction to opiates, barbiturates and alcohol, and of the many naturally-occurring substances which man has used over the centuries to affect his mind.

Louria, D. Nightmare Drugs. New York: Pocket Books, Inc., 1966. (#10157)
A doctor writes passionately of heroin, sedatives, stimulants, tranquilizers, hallucinogens, addiction, the laws.

Newland, Constance. Myself and I. New York: Signet Books, 1962. (#T2294)
An autobiographical account of a young woman's experiences with LSD in psychotherapy. Based on twenty-three sessions, each of which lasted five hours. Reports both her actual perceptions and experiences under the drug and her understanding and integration of these experiences at a later time.

Simmons, J.L. and Winograd, B. It's Happening. Santa Barbara: Marc/Laird Press, 1966.
A thought-provoking sociological analysis of the current youth scene including drug use on the campus.

*Solomon, D. (Ed.). LSD: The Consciousness-Expanding Drug. New York: Putnam, Berkeley Medallion Books, 1964. (#N1277)
Reprints of articles appearing in a variety of journals. Includes Cole & Katz and Unger from references on hallucinogens.

*Young, W. and Hixson, J. LSD on Campus. New York: Dell, 1966. (#5112)
Two former science editors of Life and Newsweek, respectively, write a reasonably balanced journalistic account of drugs on the campus.

III. Selected Articles

A. Barbiturates

*1. AMA Committee on Alcoholism and Drug Addiction (Dale Cameron, M.D., Chairman). Dependence on barbiturates and other sedative drugs. JAMA, 1965, 193(8), 673-77.

*2. Fort, J. The problem of barbiturates in the USA. Bull. Narcotics, 1964, 16 (1), 17-35.

3. Fraser, H.F., et al. Chronic barbiturate intoxication, further studies. Arch. Intern. Med., 1954, 94, 34-41.

4. Isbell, H. and Fraser, H.F. Addiction to analgesics and barbiturates. Pharmacol. Rev., 1950, 2, 355-97.

*5. Seevers, M.H. Abuse of barbiturates and amphetamines. Postgrad. Medicine, 1965, 37(1), 45-51.

6. Shideman, F. E. Clinical pharmacology of hypnotics and sedatives. Clin. pharmacol. Ther., 1961, 2, 313-44.

7. Smith, D.R. Drug intoxication: barbiturates and tranquilizers. Applied Therapy, 1964, 6(3), 219-22.

*8. Public Health Service Publ. #545 (Revised 1963). Barbiturates as addicting drugs.

B. Amphetamines

1. Breitner, C. Appetite-suppressing drugs as an etiologic factor and mental illness. Psychosomatics, 1963, 4, 327-33.

2. Kiloh, L.G. and Brandon, S. Habituation and addiction to amphetamines. Brit. Med. J., 1962, 11 (5296), 40-43.

*3. Knapp, P.H. Amphetamine and addiction. J. Nerv. Ment. Dis., 1952, 115 (5), 406-432.

4. McCormick, T.C., Jr. Toxic reactions to amphetamines. Dis. Nerv. System, 1962, 23 (4), 219-224.

*5. Seevers, M.H. Abuse of barbiturates and amphetamines. Postgrad. Medicine, 1965, 34 (1), 45-51.

6. Weiner, I.B. Differential diagnosis in amphetamine psychosis. Psychiat. Quart., 1964, 38 (4), 707-716.

C. Hallucinogens

1. Barron, F. et al. The hallucinogenic drugs. Scientific American. 1964, 210 (4), 29-37.

2. Cohen, S. and Ditman, K.S. Complications associated with lysergic acid diethylamide (LSD-25). JAMA, 1962, 181 (2), 161-62.

3. Cohen, S. and Ditman, K.S. Prolonged adverse reactions to lysergic acid diethylamide. Arch. Gen. Psychiat., 1963, 8, 475-480.

4. Cohen, S. Suicide following morning glory seed ingestion. Amer. J. Psychiat, 1964, 120, 1024-1025.

*5. Cole, J.O. and Katz, M.M. The psychotomimetic drugs: An overview. JAMA, 1964, 187 (10), 758-761. (In Solomon, LSD).

6. Frosch, W.A. et al. Untoward reactions to lysergic acid diethylamide (LSD) resulting in hospitalization. New Eng. J. Med., 1965, 273, 1235-1239.

*7. Hoffer, A. D-Lysergic acid diethylamide (LSD): A review of its present status. Clin. pharm. Ther., 1965, 6 (2), 183-255.

8. Ingram, A.L. Morning glory seed reaction. JAMA, 1964, 190 (13), 1133-34.

9. Jacobsen, E. The clinical pharmacology of the hallucinogens. Clin. pharmacol. Ther., 1963, 4 (4), 480-503.

*10. Kleber, H.D. Student use of hallucinogens. J. Amer. Coll. Health Assn., 1965, 14, 109-117.

11. Klee, G.D. Lysergic acid diethylamide (LSD-25) and ego functions Arch. Gen. Psychiat., 1963, 8 (5), 461-474.

*12. Levine, J. and Ludwig, A.M. The LSD controversy. Comprehensive Psychiatry, 1964, 5 (5), 314-321.

*13. Ludwig, A.M. and Levine, J. Patterns of hallucinogenic drug abuse. JAMA, 1965, 191 (2), 92-96.

*14. Ludwig, A.M. and Levine, J. The clinical effects of psychedelic agents. Clin. Med., 1966, 73, 21-24.

*15. McGlothlin, W.H. Hallucinogenic drugs: A perspective. Psychedelic Review. 1965, #6, 16-57. (Peyote and Cannabis.)

*16. McGlothlin, W.H. and Cohen, S. The use of hallucinogenic drugs among college students. Amer. J. Psychiat., 1965, 122 (5), 572-574.

17. Savage, C. and Stolaroff, M. Clarifying the confusion regarding LSD-25. J. Nerv. Ment. Dis., 1965, 14, 218-221.

18. Sjoberg, B.M., Jr., and Hollister, L.E. The effects of Psychotomimetic drugs on primary suggestibility. Psychopharmacologia, 1965, 8 (4), 251-262.

19. Unger, S.M. Mescaline, LSD, Psilocybin and personality change. Psychiatry, 1963, 26 (2), 111-125. (In Solomon, LSD.)

IV. General Pharmacology

Goodman, L., and Gilman, A. The Pharmacological Basis of Therapeutics. New York: Macmillan, 1965 (3rd Edition).
In addition to the usual chapters on the pharmacology of the individual classes of drugs there is one on "Drug Addiction and Drug Abuse" by J.H. Jaffe. Most of the material deals with the opiates and barbiturates. All the usual definitons, etc. About 100 references.